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INSIDE: TRUTH-TELLING AT NATIONAL MUSEUM OF THE AMERICAN INDIAN

**PLUS: ENGAGING CHILDREN IN MUSEUM PLANNING,
AND MORE!**

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Mary Ellen Hawkins. Graduate student at Georgetown University studying Art & Museum Studies. She may be reached at mrh284@georgetown.edu.

LIBRARIES RESPOND TO COMMUNITY HEALTH NEEDS: PROGRAMS AND SURVEY RESULTS

By Paul Dusenbery, Josina Romero O'Connell, and Beth Crist

OVERVIEWS

The Novel Coronavirus (COVID-19) pandemic has caused a seismic paradigm shift. It has changed how people socialize, communicate, work, eat, and care for one another. It revealed the need for an infrastructure at the ready to mobilize public health resources to respond to future unexpected health challenges.

COVID-19 is not the first health crisis we have seen that is wrought with misinformation and lack of effective educational outreach resources to help communities make appropriate science-based decisions. Examples include the Spanish Flu of 1918 and the AIDS epidemic of the 1980's. We have seen Ebola epidemics in other countries that hit too close to home. In all of these, disparities in health education and the delivery of health resources and infor-

mation made our national response less effective. While there are many excellent sources of information (e.g., from NIH, CDC, public health departments, and universities) about how to keep people healthy during pandemics, like COVID-19, information alone is not sufficient.

There are many other endemic health crises that did not disappear during the pandemic such as the seasonal flu, cardiovascular disease, substance abuse, and the continuing mental health challenges that have been exacerbated by COVID-19. Other critical issues need to be addressed. They include disparities in health outcomes for various ethnic populations, lack of access to healthcare services in many rural areas in the U.S., and low levels of health literacy for so many of our citizens.



Figure 1: Telemundo films a TV segment at the Discover Health exhibit/ Anythink Brighton Library. Credit: Marina La Grave

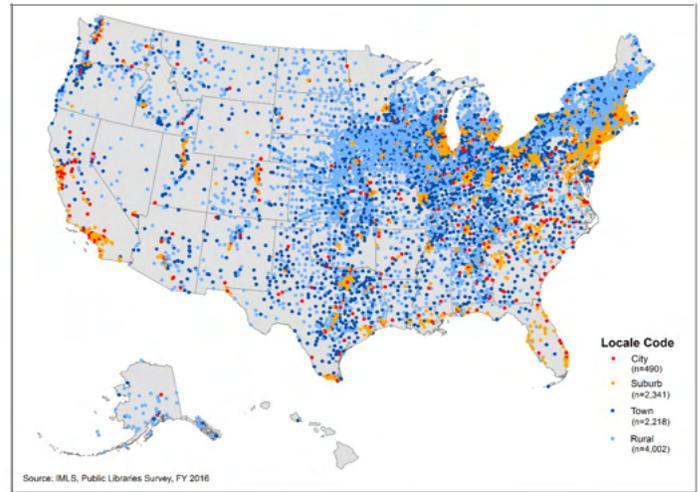


Figure 2: Distribution of Public Libraries in the United States, Fiscal Year 2016. Credit: Public Library Association

The COVID-19 pandemic, and our national response to it, is a wake-up call for all communities to take immediate action. If communities are going to effectively respond to current and emerging health challenges, they will need to engage the whole community in order to have the necessary collective impact (Kania and Kramer, 2011) to improve the health and wellbeing of all their citizens. The collective impact model requires an anchor (or hub) institution that is trusted by community members that is willing and able to work with other community organizations such as hospitals, clinics, museums, K-12 schools, and community colleges. **One institution that can serve as a community hub, for people of all ages and in every region of the country, is our public library system – the central focus of this paper.**

ROLE OF PUBLIC LIBRARIES AS COMMUNITY HUBS

Communities value their public library as a hub for community engagement and lifelong learning. As places that offer their services for free, public libraries have become the “public square” by providing a place where members of a community can gather for information, educational programming, and policy discussions (The Aspen Institute, 2014; Dusenbery 2014a; American Library Association, 2018). In 2019, there were 1.2 billion in-person visits to the 16,560 public libraries and 647 bookmobiles in the U.S. (Pelczar et al., 2021). This is equivalent of about 4 million visits each day. Public programming expanded 17% since FY2012 (Reid, 2017); in 2019, public libraries offered 5.90 million programs across all age bands and on a variety of topics, which were attended by over 124.7 million people (Pelczar et al., 2021).

STEM disciplines and careers are an increasing focus of

public library programs and services (Baek, 2013; Hakala et al., 2016; LaConte & Dusenbery, 2016). Libraries may provide STEM programs on their own, or in partnership with other libraries, museums, businesses, and schools to educate and engage the public in STEM topics (Koester, 2013; NRC, 2015).

They hold great promise for promoting STEM education and learning (Dusenbery, 2014a; Shtivelband et al., 2016; Gilbert et al., 2019). These informal, free-choice institutions (NRC, 2009) are creating makerspaces (Hartnett, 2016) and hosting STEM exhibits (Dusenbery et al., 2020). They also offer hands-on STEM programming, both in-person (Dusenbery 2014b; IMLS, 2018; Dusenbery et al., 2020) and online (Johnson et al., 2019; Vierow-Fields et al., 2021). The latter program type was especially important during the COVID-19 pandemic.

When the Space Science Institute initially surveyed libraries in 2008 (prior to [STAR Net](#)), many librarians did not feel comfortable conducting STEM programming, didn’t know that STEM exhibit opportunities were available to them (they were far more comfortable with history and literature subjects), and did not feel like they had received any instruction on how to implement a hands-on STEM program (Dusenbery, 2014a).

The latest STAR Net library survey, reported by Shtivelband et al. (2017), found that of the 717 responding libraries (49% of which were in rural/small communities), 75% offer STEM programming “more than once per month” or “monthly.” Most libraries surveyed (91%) were extremely interested or interested in offering more STEM programming, and 69% felt “ready” to offer STEM programs and activities to their patrons. In just a few years, libraries

around the country have significantly shifted—and continue shifting—their practice towards STEM, which should not be surprising, as libraries have responded to community interest and needs that STEM learning can address.



Figure 3: Library patrons at a STAR Net/Discover Tech library venue. Credit: STAR Library Network

HEALTH LITERACY AND PUBLIC HEALTH: THE ROLE OF INFORMAL SCIENCE EDUCATION INSTITUTIONS

Health literacy and the importance of public health are in the news practically every day because of the COVID-19 pandemic. It's important to understand the link between health literacy and science literacy. Health literacy and public health depend upon an understanding of science (e.g., anatomy, physiology, diseases) and the scientific process (including critical thinking and scientific uncertainty). There has been an astonishing amount of misinformation about vaccines and related health issues. Much of this misinformation comes back to a lack of understanding what science is and how scientific knowledge builds over time. The public's confusion about science is a fundamental challenge not only for addressing the current pandemic but future ones as well. Public libraries and other informal science education (ISE) organizations (like museums and science centers) can play an important role by providing their communities with up-to-date and accurate information (and active learning programs) about relevant health topics that enhance health literacy.

For example, the Oregon Museum of Science and Industry received [Science Education Partnership Award](#) (SEPA) funding from the National Institutes of Health (NIH) to produce interactive STEM exhibitions on a variety of health and wellness topics (Coats, 2020). These included healthy eating and the importance of physical exercise (*Eat Well/Play Well*), our body's microbiome (*Zoo in You*), and brain health (*Happy Brain*). These traveling exhibitions were

developed with the help of biomedical scientists and used OMSI's extensive bilingual and bicultural development process. The exhibitions have been on tour beginning in 2005.

The Association of Science and Technology Centers (ASTC) is leading a national COVID awareness program called [Communities for Immunity](#). It is a partnership with the Institute of Museum and Library Services, the American Alliance of Museums, and the Network of the National Library of Medicine, with support from the Centers for Disease Control and Prevention. Collaborators include the American Library Association, the Association of African American Museums, the Association of Children's Museums, the Association for Rural and Small Libraries, the Association of Tribal Archives, Libraries, and Museums, and the Urban Libraries Council. Its focus is on supporting the work of museums and libraries in engaging their communities in improving COVID-19 vaccine acceptance and confidence.

HEALTH LITERACY PROGRAMS IN PUBLIC LIBRARIES

Over the last ten years, public libraries have begun to develop various types of health programs for their communities from providing basic health information to improving health literacy. For example, the Public Library Association (PLA) contributed to the U.S. Department of Human Services report (2010) called the [National Action Plan to Improve Health Literacy](#). This plan emphasized the importance of cross-sector collaboration between public libraries and community health organizations particularly to "support and expand local efforts to provide adult education, English language instruction, and culturally and linguistically appropriate health information services in the community."

The Public Library Association published [Health Happens in Libraries Part 1: Libraries Promote Health Literacy](#) (Morris, 2016) to draw attention to this important topic. OCLC's WebJunction offers a variety of health resources (such as webinars and infographics) that can assist libraries (and other ISE organizations) interested in building an effective health literacy program. See its [Health Happens in Libraries](#) initiative for help in getting started.

Two recent published studies address how public libraries can play a critical role in improving community health awareness and disparities. The first is the [Libraries as Partners in Health](#) study funded by CDC (Whiteman et al., 2018). This study used a 100-question survey that was sent to all library directors in Pennsylvania to investigate the types of interactions between library workers and patrons. The report concluded that "the challenges library staff members experience in meeting their patrons' information needs suggest opportunities for public libraries to advance population health. Library staff members need additional

training and resources and collaboration with public health and health care institutions to respond to community needs through effective, evidence-based public health programming.”

The second study (Philbin et al., 2019) focused on the social determinants of health to examine the potential of libraries as a community-level resource to reduce health disparities. Social determinants of health inequality include factors such as transportation, addictions, food insecurity, and unemployment. For each determinant (10) they described how libraries could mitigate the inequality and offered several examples of past and ongoing services that U.S. public libraries are providing. The authors conclude that evaluation measures and resources need to be improved to really understand the outcomes of certain library interventions and to better understand the efficacy of library programs compared to those of other community-based institutions.

A LIBRARY EXHIBITION ON HEALTH

[Discover Health/Descubre la Salud](#) (Discover Health) 1.0 was a bilingual English/Spanish informal health education project funded by a SEPA award from NIH. The project period was from 2014-2020. It included the following partners: Colorado Area Health Education Center (COAHEC) at the University of Colorado Anschutz Medical Campus in Denver (lead organization), the STAR Library Network, the Latin American Center for Arts Science and Education (CLACE), and Knight Williams, Inc. (independent evaluator). Dr. Robert Russell served as its Media Outreach Advisor.

Six regional Colorado AHECs partnered with 10 Colorado libraries (regions are shown in Figure 4). The AHECs served residents in the same regions as the 10 participating

libraries. The project’s main deliverables included an 800 square-foot, traveling library exhibit supported by community education programs and resources designed to engage library patrons within the state of Colorado to learn about key public health issues in their communities related to cardiovascular health, diabetes, and obesity. The project was designed to engage underserved Latinx and rural communities with the exhibit and programming and to encourage youth from these communities to pursue careers in health care professions.

The exhibit included a variety of interactive multimedia experiences, ranging from computer-based interactives to large-scale models of the heart and torso and other hands-on interactives (see Figure 5). The exhibit was hosted asynchronously by 10 Colorado libraries beginning in January 2017 at Sterling Public Library and ending in November 2019 at Penrose Public Library (Colorado Springs). During the planning and early implementation phase, the project team hosted a two-day training workshop in Brighton, Colorado in 2016 for participating library and AHEC partners. The training covered a wide range of topics including how to enhance the library-AHEC partnerships, understanding the exhibit components, ideas for library programs and outreach events, promising media strategies, and the project evaluation plan. The project team also conducted an abbreviated training workshop in Colorado Springs in 2019, at the Penrose Public Library.

EXTERNAL EVALUATION FINDINGS

Before the first Colorado library hosted Discover Health in January 2017, there was little precedent for the use of health-focused exhibits in the library setting. Based on the evaluation team’s cross-site analysis of the ten libraries that hosted the exhibit from 2017-2019 and in-depth case

study of patrons’ experience with the exhibit at the final library site, the project findings indicated this is a promising approach. Taken together, the results demonstrated that the library and AHEC partners had a positive experience collaborating on their implementation of Discover Health and that the exhibit positively impacted patrons’ personal health and STEM engagement, as well as their interest, learning, motivation, and intentions to follow-up. These findings add to and extend the results reported from prior evaluations of library-based STEM exhibit projects (e.g., Dusenbery et al., 2020).

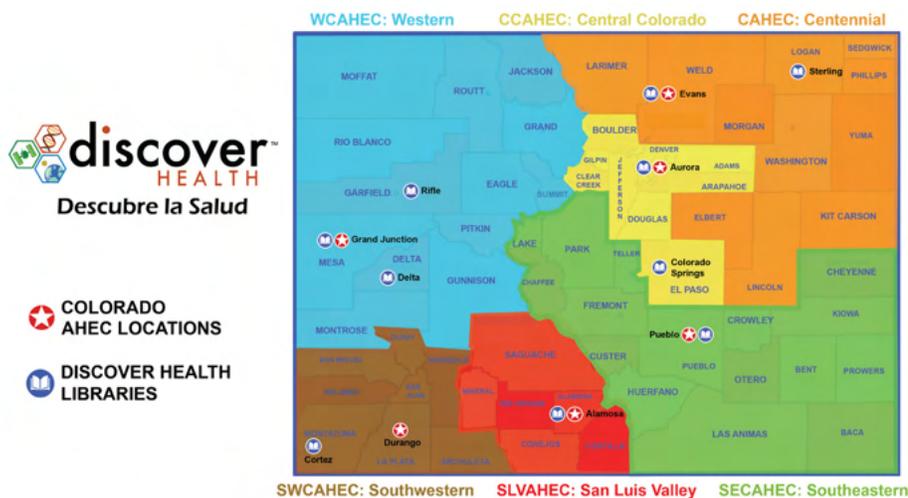


Figure 4. Colorado AHEC Regions and library tour sites.
Credit: Colorado Area Health Education Center

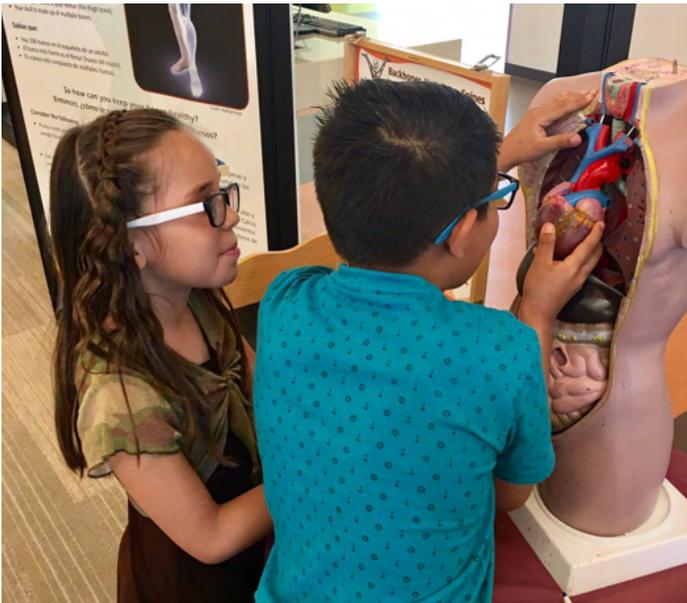


Figure 5: Young library patrons explore the human body at the Discover Health exhibit/ Anythink Brighton Library.
Credit: Marina La Grave

HEALTH SURVEY METHODOLOGY

The Colorado Area Health Education Center (COAHEC) in partnership with the Anschutz Medical Campus, the Colorado State Library, and the [STAR Library Network](#), released a twelve question survey on March 16, 2021 asking Colorado public library staff to provide information about their interest (and their community’s interest) in a variety of health related concerns. It also ascertained their willingness to join a trusted network of health professionals that would disseminate health information and learning opportunities to all communities in Colorado. The goal of this learning network would be to address chronic health issues and emerging crises in medicine and public health. The survey was open for a 2-week period that ended on March 30, 2021. A total of 64 library staff from public libraries in urban, suburban, and rural communities in Colorado completed the survey. This paper presents key findings from the survey.

HEALTH SURVEY RESULTS

Most respondents (61%) listed themselves as a library director or manager. This category included associate directors, branch managers, digital services managers, and supervisors. The next largest group was adult services staff (19%) followed by youth services staff (13%). The “Other” category (8%) included a librarian generalist, a librarian, library aide, and staff working in collections and outreach. The large percentage of directors/managers responding to the survey may be a consequence of the listserv used by Colorado State Library and the key purpose of the survey (learning about how Colorado libraries and library systems are confronting public health challenges). The unusual size

of the adult services staff (19%) could also be due to the interest in developing effective health resources for adults.

Library Community Type. When asked to define the type of community where their library is located, 30 (45%) respondents identified their community as either rural or suburban/rural. Another rural category is resort (e.g., Aspen and Vail) though these communities are very different from other types of rural communities. They totaled 7%. Adding all the rural communities together the result was 52%. This is very close to the Hakala survey results of 54% found in their national sample and the 49% from the Shtivelband survey. Urban, urban/suburban, and suburban communities totaled 43%. The “Other” category (4.7%) included libraries that served a mixed population: urban/suburban/rural. The following pie chart represents the total respondents’ self-identified community types (n=64).

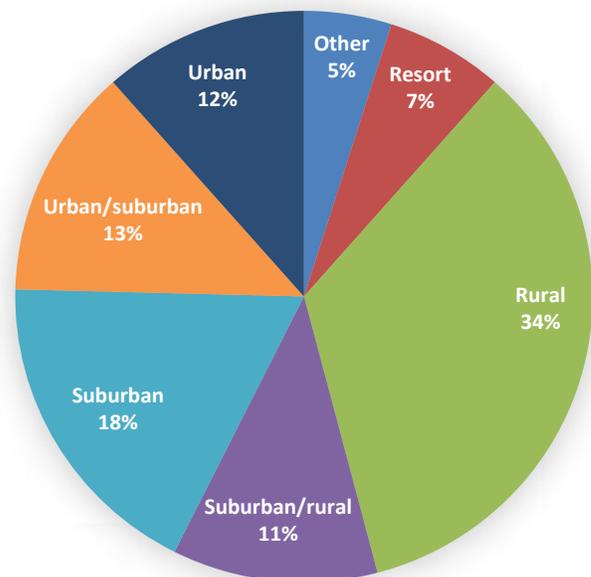


Figure 6: Library Community Type

WHO ARE THE COMMUNITY MEMBERS YOU FEEL ARE UNDER-UTILIZING YOUR SERVICES?

This was the first of three open ended questions that helped the authors understand what community members/patrons were under-utilizing library services. This captures the populations that libraries feel are underserved. Selected responses are on the next page (Table 1).

Survey responses reflected the burning need for communities to provide critical services (such as food, shelter, and healthcare) and programs for their underserved and underrepresented populations. Diversity, Equity, Inclusion, and Accessibility (DEIA) are key factors in designing and implementing public library programs. In fact, DEIA is a core value of librarianship (ALA, 2019).

Table 1: Community Members Under-utilizing Library Services

“More outreach to our homeless population”
“Our seniors, Latinx community, and homeless community”
“Low-income families”
“Some young families/20-30 somethings”
“Town Council! Teens”
“Domestic violence victims, people with mental illness issues, also regular community members who mistakenly still think we’re simply warehousing books.”
“Patrons for whom language, technology, and transportation are barriers.”
“Disabled Spanish speakers, immigrants, poor”
“Working parents”
“People who speak multiple languages and/or non-English speakers”
“Immigrant, refugees, teens”
“Spanish speakers, teens, and young adults (college aged)”
“Teens and school-age children; Seniors with Covid-related concerns”
“Everyone. Since the library had to shut down due to the pandemic our patronage has not totally picked back up to what it was.”
“Parents/middle-aged people”
“The elderly and teens.”
“Minorities, non-English speakers, more affluent community members”
“Males in their 20s-30s; Parents of High School Students; Business Owners; Working Professionals”

DURING THE PANDEMIC, WHAT COMMUNITY MEMBERS WERE NOT ABLE TO ACCESS GOOD HEALTH INFORMATION AND RESOURCES?

During the pandemic many services went to an online mode of operation including education classes for youth, ordering groceries and meals, tele-medicine, Zoom meetings, and workshops. Many rural communities were not able to take advantage of this changing landscape. Access to affordable and reliable internet service was a major barrier not only for Colorado communities but for many communities nationwide. The pandemic elevated the long-standing digital divide as an equity issue in the public’s eye.

The digital divide is real and has many deleterious impacts on a community’s ability to function in our ever-increasing technological world. The digital divide includes not only the lack of internet access in homes and/or the lack of computer access but it also includes lack of knowledge in using computer technology and the internet. Predominate-

ly seen in lower income, marginalized, and rural communities, the lack of internet access has many negative consequences in education, income disparities, and healthcare.

The COVID-19 pandemic has transformed libraries and their communities. Library staff have had to learn how to deliver essential assistance safely, while also pivoting their in-person programming to online delivery. As discussed in *Libraries Respond to COVID: Part 1* (Vierow-Fields et al, 2020), the beginning of the pandemic impacted library operations severely between furloughs, closings, and the need to engage with at-risk communities in a safe and healthy way. These changes will likely have impacts far beyond the period when COVID-19 is a threat. Bridging these gaps are essential aspects of social inclusion for just, fair, and equitable access to resources and opportunities to achieve a higher quality of life and well-being (van Deursen & van Dijk, 2014).

WHAT HEALTH TOPICS ARE MOST IMPORTANT TO YOUR LIBRARY AND COMMUNITY?

Figure 7: Important Health Topics

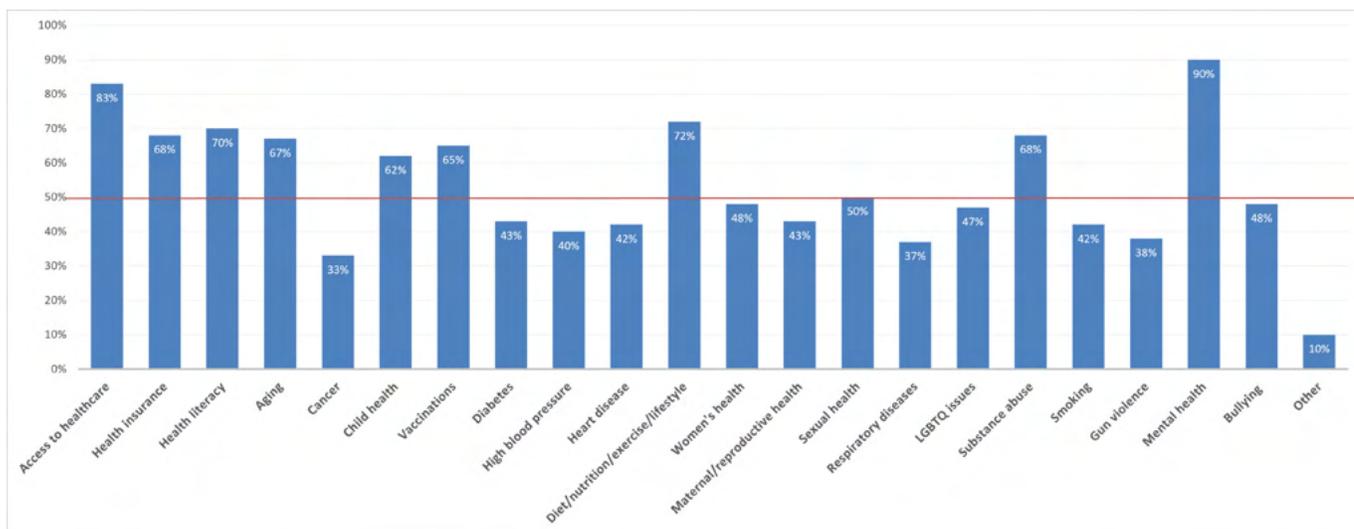
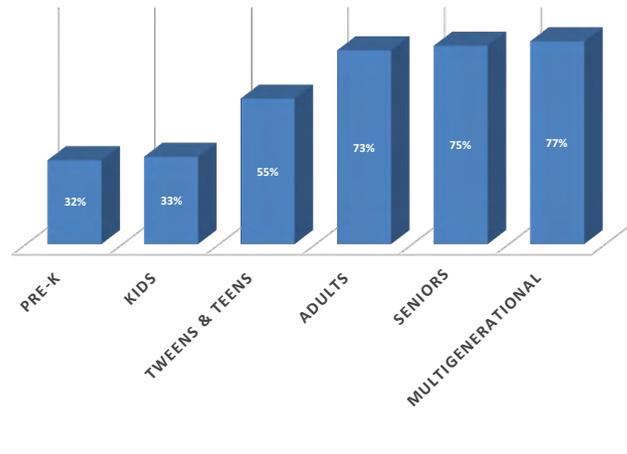


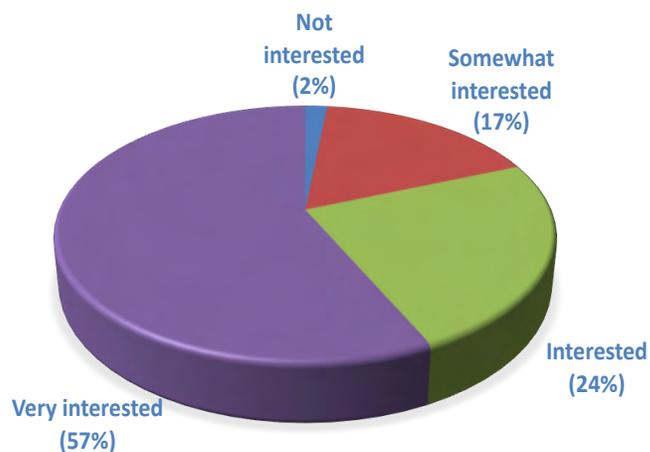
Figure 8: Target Age Levels

There was broad interest across many health topics as shown in Figure 7. A rust-colored line was placed at the 50% level to make it easier to see which topics were rated particularly high. These included Access to Healthcare, Health Insurance Information, Health Literacy, Aging, Child Health, Vaccinations, Lifestyle, Substance Abuse, and Mental Health. Notice that there were many topic areas near the 40% level. With the increase of air quality concerns due to pollution and wildfires, respiratory diseases (e.g., asthma, COPD, emphysema) will likely become more important in the future.



The Other category was small (10%) but included some interesting perspectives. One respondent said that “Housing is considered a public health (crisis) issue in our community.” Housing is related to homelessness and other socio-economic factors. Several respondents mentioned that “information and resources for children that are on the autism spectrum” would be beneficial. Another mentioned “health information in languages other than English (particularly Spanish in my community).” And finally, one said that “generally, access and awareness and opportunity for ANY type of health needs” would be important for their community.

Figure 9: Interest in offering health programs



WHAT GENERAL AGE LEVELS DO (OR WOULD) YOU TARGET WITH HEALTH-RELATED PROGRAMMING?

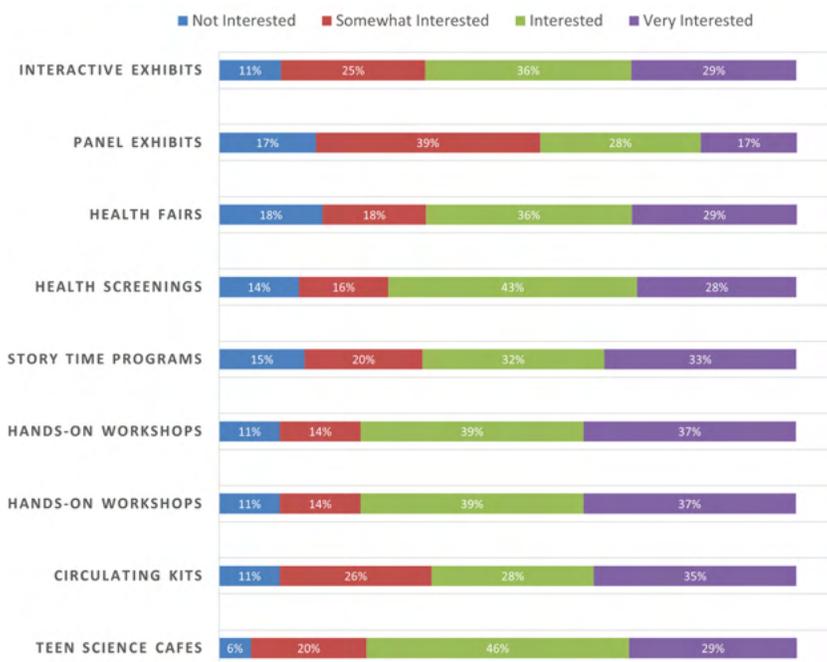
In the Hakala survey, Pre-K, elementary and middle school-aged children were the primary targets for STEM programs. Because of the health topic focus of this survey, the target age bands skew to older patrons: tweens/teens, adults, seniors, and multigenerational groups. This result is

consistent with the responses tabulated in Table 1, where health needs are a serious concern for all ages. Library staff felt that this topic would be of particular interest to older patrons. The large percentage for the tweens and teens category is particularly noteworthy. Respondents felt that library health literacy programs could be an effective way to engage this hard-to-reach demographic.

Interest development is a key aspect of learning and is tied to other concepts such as motivation, engagement,

kits, workshops) have high interest levels in the combined Interested/Very Interested categories. Those that are substantially greater than 50% include hands-on exhibits at 65% (such as Discover Health mentioned earlier); health fairs at 65%; health screenings at 71%; story time at 65%; hands-on workshops at 76%; circulating kits at 63%; and teen science cafes at 75%. The latter result is very surprising and exciting because it shows that public libraries feel that programs like this could attract tweens and teens, a challenging demographic to reach (YALSA, 2016). Interest in health-related story time programs was strong (65%) and would be appropriate for children birth-six. For adults, interest in health screenings and hands-on workshops is very high (>70%). These results clearly show that library staff feel that health programs could be an effective strategy to engage the whole community!

Figure 10: Interest in specific health program types



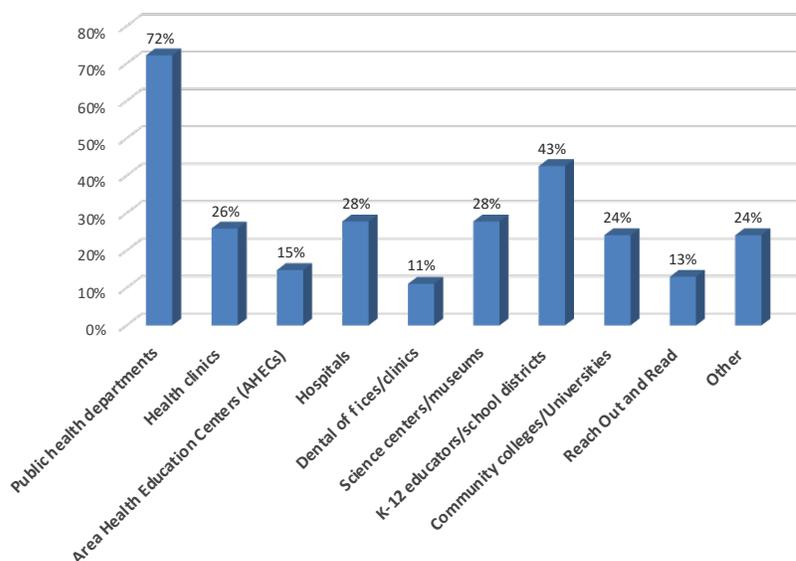
WHAT ORGANIZATIONS DOES (OR WOULD) YOUR LIBRARY PARTNER WITH FOR HEALTH-RELATED PROGRAMING?

The two largest responses to this question (see figure 11) were public health departments (72%) and K-12 teachers and school districts (43%). The next group of responses (20%-30%) included many organizations that libraries are currently or are planning to partner with (health clinics, hospitals, science museums, community colleges/universities, and the “Other” category). The “Other” category included the following types of organizations: Tri-county Health Network, local experts, Catholic Charities, county mental health departments, Early

identity, and attitude (c.f., Hidi and Renninger, 2006). These learning constructs are important when considering how to design learning environments and programs that can have deep impact upon library patrons and community. They all include various elements of affective, cognitive, and social/cultural interactions (Falk and Storksdieck, 2005). This survey found that a large percentage (81%) of the respondents were interested or very interested in providing health programs with health organization partners (See Figure 9).

The results shown in Figure 10 demonstrate that many health program types (e.g., exhibits, screenings,

Figure 11: Library partners for health-related programming



Childhood Councils, health food stores, and the Alzheimer's Association. Libraries can develop collaborations with these types of organizations to expand their community reach.

Communities in Colorado, and beyond, are faced with many daunting health-related challenges (e.g., COVID-19, health disparities, homelessness). Developing and nurturing key partnerships is an important strategy to address



Figure 12: Health screening program at the Penrose Library led by the COAHEC team. Credit: Discover Health

these challenges. By working closely with like-minded organizations, libraries and their partners can achieve much more than if they worked in isolation.

CONCLUSIONS

Public libraries are particularly ideal for reaching populations in need of quality health information and resources as they serve people of all races, ages, and socio-economic backgrounds and are re-envisioning their mission and role in the community to be more inclusive and sustainable. But more needs to be done.

Disparities in health education and the delivery of health resources and information to vulnerable populations are at the crux of many of the health challenges our country faces. On a national level, it is far from certain when public libraries, or our nation and world, will return to a new “normal.” Challenges, such as digital divide inequalities, homelessness, access to affordable healthcare services, will need to be addressed locally as well as nationally.

This survey showed that library staff in Colorado are very interested in establishing a robust health literacy program that covers all age bands from Pre-K to seniors and are enthusiastic about partnering with community-based organizations who can help them achieve long-term success. Library respondents were also interested in establishing a *Health Response Network* that included libraries, public health departments, universities/community colleges, and other community-based organizations.

The COVID-19 pandemic made it abundantly clear that informal science education (ISE) institutions cannot operate in a vacuum. While libraries and other ISEs have always found their collaborations to be important, the pandemic has shown it's even more critical now. Such partnerships can improve access to health services and provide the necessary training for community members to better understand how to maintain their physical and mental health.

There are, for instance, cross-sector models where community partnerships between libraries and science museums have been established and are successful (e.g., in Ithaca, NY; Columbus, OH; Portland, OR; and Seattle, WA). Similar efforts can make a real long-term difference to the health and vitality of all communities, large and small, across the country.

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Paul Dusenbery is Senior Educator Emeritus at the Space Science Institute. He may be reached at dusenbery@spacescience.org.

Josina O'Connell is Director, Colorado Area Health Education Center (COAHEC), at the University of Colorado. She may be reached at JOSINA.OCONNELL@CUANSCHUTZ.EDU.

Beth Crist is the Youth & Family Services Consultant at the Colorado State Library. She can be reached at Crist_B@cde.state.co.us.

WALTER'S HIERARCHY OF MUSEUM NEEDS

By Charlie Walter

In 1943, Abraham Maslow proposed a hierarchy of human needs¹. His theory noted that a person must satisfy basic, physiological needs (food, water, shelter) before directing behavior towards upper level needs, such as esteem and self-actualization. After reviewing Maslow's model for a museum administration class I was teaching, it struck me that museums "behave" in similar ways.

A MUSEUM'S PHYSIOLOGICAL NEEDS

At the most basic level, a museum needs attendance and revenue to survive. If the numbers do not work, the museum will struggle. When this happens, many museum meetings focus on attendance and the budget. How do we attract more people? Can we charge more? Do we need to layoff staff? Can we do a better job fundraising? Sustained financial stress can lead to deferred maintenance on the museum building itself. When the roof starts leaking and you must close a gallery, financial trouble caused by poor performance operationally now compounds into capital funding needs. These critical issues dominate and often keep the organization from talking about new exhibits, programs, partnerships, or professional development. Most of the energy is focused on day-to-day survival. This is a hard place for a museum professional to stay in for



very long and staff turnover could be high. A Board might turn to a financial manager as a director because getting the numbers right is so important to the organization's survival.