Regional and National Adoption of the *Healthy Kids Out of School* Patch Program for Scouts

healthy kids out of school

BACKGROUND

The United States continues to be plagued by an obesity epidemic with approximately one third of school-aged children overweight or obese.[1] Efforts to reduce obesity have primarily targeted the school environment, with few attempts made to improve children's energy balance during the time they spend in organized activities before and after school and during school vacations.[2] Out-of-school-time (OST) programs represent an important setting for obesity prevention as they reach a large and diverse population of children and offer opportunities to promote healthy behaviors. Healthy Kids Out of School (HKOS), an initiative of ChildObesity180 at Tufts University, aims to support children in making healthy choices during the time they spend outside of school by partnering with OST organizations in which millions of children participate nationwide.

In 2013, HKOS developed the SCOUTStrong Healthy Unit Patch to promote healthy eating and physical activity during Scout meetings. This patch program was initially launched as a pilot program for Boy Scouts in the New England region and promoted by HKOS staff through trainings with Boy Scout Leaders in in Maine, Massachusetts and New Hampshire. The patch program has since been adopted and earned by thousands of Boy Scout Units and Girl Scout Troops across the United States. Using spatial analysis, this project purposes to assess the geographical location of Boy Scout patch recipients in New England and the spread of patch recipients nationally. The location of national patch recipients was also mapped against several sociodemographic variables of organizational interest. In doing so, the project serves to inform the effectiveness of the HKOS regional initiative as well as future efforts to scale the program nationally.

SCOUT Strong · Healthy UNIT · FIT • FUEL • FUN

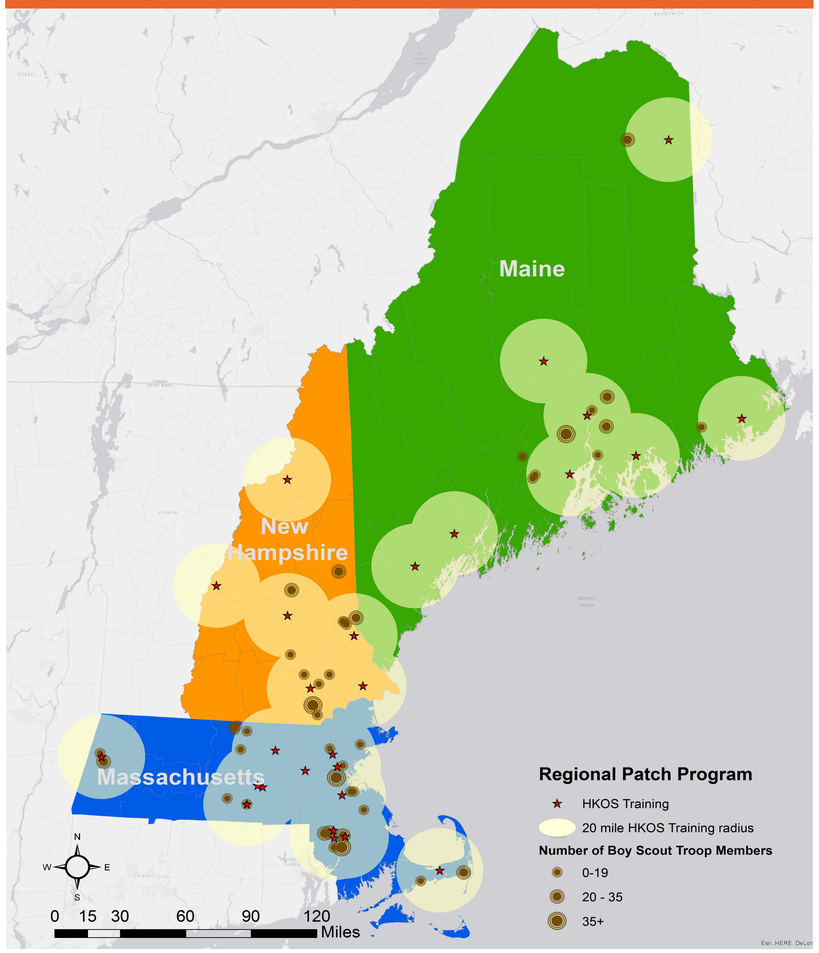
DATA & METHODS

Data Acquisition: Address information was acquired from HKOS in March, 2015. Data on state-level obesity comes from the CDC 2010 Behavioral Risk Factor Surveillance System (BRFSS). Publically available thematic maps for 2010 county-level racial/ethnic diversity and 2010 county-level income were accessed from Esri ArcGIS. The racial/ethnic diversity index shows the likelihood that two randomly selected persons, from the same geographic area, belong to different race or ethnic groups. The income map shows the median-income for households by county. State shapefiles with county boundaries come from the U.S. Census Bureau TIGER/Line 2013 database and were accessed in March, 2015.

Regional Analysis: Street addresses of Boy Scout patch recipients located in the three New England states of interest were geocoded using tools available from Texas A&M Geoservices and overlaid on the U.S. Census Bureau TIGER maps. Post Office Box addresses were unable to be geocoded and were excluded from the analyses (n= 2% regional Boy Scout Units). Census Tract data that overlapped with area water features was eliminated by excluding the "land = 0" areas. Boy Scout Units were then displayed using symbols proportional to the number of members in each troop. The HKOS training locations were similarly geocoded and added as a layer to the proportional symbol map. The 20-mile zone surrounding each HKOS training was visualized using the proximity analysis buffer tool available through ARC Map.

National Analysis: Choropleth basemaps were chosen to display the sociodemographic variables of interest. A choropleth map for state-level obesity was created based on the BMI ≥ 30 variable available from the CDC BRFSS. County-level income and county-level diversity were added as layers from the Arc Map online database. Street addresses of Boy Scout and Girl Scout patch recipients were geocoded and added to each of the three basemaps. Addresses with Post Office Boxes were excluded (1.9% Boy Scouts; 0.8% Girl Scouts). Queries were performed to calculate the total number of troops that achieved the patch and the number of states in which patches have been earned by Boy Scouts and Girl Scouts, respectively.

Regional Boy Scout Patch Recipients and 20-Mile Training Proximity



Healthy Unit Patch Program Requirements:

3 Serve fruit or vegetable at 3 meetings.
6 Serve water as the primary beverage at 6 meetings.
9 Do 15 minutes of physical activity at 9 meetings.

KEY FINDINGS

Regional Analysis: 6 trainings in New Hampshire, 8 trainings in Maine and 13 trainings in Massachusetts were conducted by HKOS staff. Boy Scouts have earned the patch in each of the three New England states targeted, with all but four units located within a 20-mile radius of a training. A limited number of Boy Scouts in northern Maine, and northern and western New Hampshire, have achieved the patch and hence should be targeted in future efforts to promote the program within New England.

National Analysis: At the time these data were acquired and analyzed in ArcMap, 120 Girl Scout Troops in 32 states and 269 Boy Scout Units in 40 states had achieved the patch. Patch recipients are concentrated in the Eastern United States, primarily in the Mid-Atlantic, Northeastern and Great Lakes regions.

Median County-Level Income: Boy Scout Units and Girl Scout Troops that have achieved the patch are primarily located in counties with median income in the upper three quantiles, which is greater than the median-income of $50,157 for the entire United States.

State-Obesity Prevalence: Patches have been earned in states with varying levels of obesity, however patches have not been earned by Boy Scouts or Girl Scouts in Mississippi or Arkansas where state obesity prevalence is high (>35%).

County-Level Diversity: Based on the definition of diversity used for this analysis, patch recipients are located in areas of differing county-level diversity, ranging from an index score of 4-29 to an index score greater than 82.

Coordinate Systems: NAD 1983 (2011) Contiguous USA Albers; NAD 1983 (2011) StatePlane Massachusetts FIPS 2002 (US Feet).

DISCUSSION & CONCLUSION

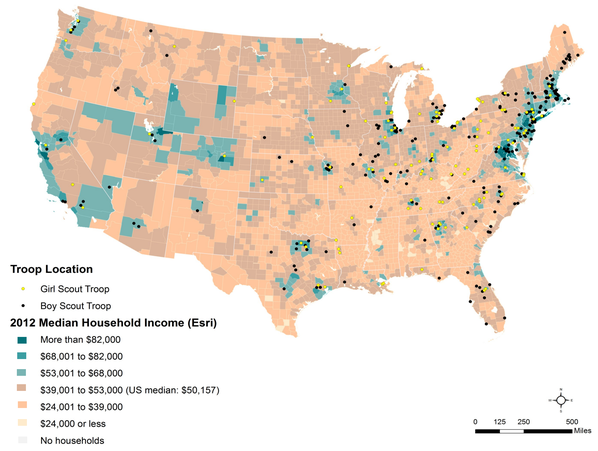
Originally a pilot program for Boy Scouts in Maine, Massachusetts and New Hampshire, the Healthy Unit Patch has now been earned by both Girl Scouts and Boy Scouts from across the United States.

The HKOS trainings served to inform Boy Scout leaders about the patch program in the New England region, and efforts are now concentrated on reaching children at the national level. This analysis provides visualization of where the patch recipients are located nationally in an effort to inform the future work of HKOS.

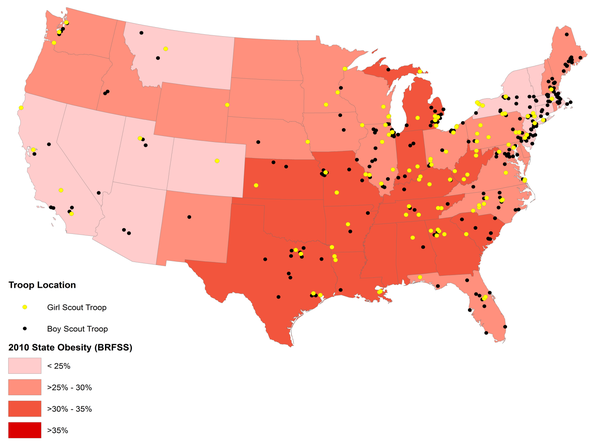
The strengths of this analysis include its novel approach to illustrate the spread of the HKOS patch program and the use of sociodemographic variables including diversity and income. There are also several limitations of note. Specific to the regional analysis, it is not possible to ascertain from the present analysis whether the Boy Scout patch recipients attended one of the HKOS trainings. For the national analyses, updated data on obesity, income and diversity were not publically available and thus the analyses may be dated. Regardless, the project offers useful information to the HKOS initiative as it continues to target the OST environment.

Future efforts to promote and expand the program can use the available information to focus efforts in areas with greater disparity in income, diversity or obesity, and also to expand the program to areas that have not yet been reached.

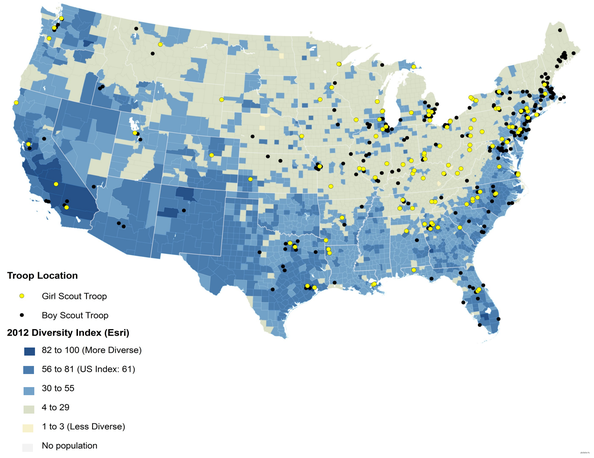
Location of patch recipients and median county-level income



Location of patch recipients and state obesity prevalence



Location of patch recipients and county-level diversity



Poster Design & Cartography: Claire Brown MSc, MPHc
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childobesity180
reverse the trend.

1. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. JAMA. 2014;311(8): 806-14.

2 Alliance A. America after 3pm: The most in-depth study of how America's Children spend their afternoons. Washington, DC: Afterschool Alliance. 2009.