

Utah Recess Guidance Evaluation

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Recess Guidance Background

The Utah Recess Guidance (URG) is a set of guidelines developed by the Utah Asthma Program (UAP) to help schools decide when to keep students indoors for recess due to poor air quality. The first URG document was drafted in 2004 in response to confusion among schools and parents on recommended recess practices for poor air quality days. The Utah Asthma Task Force planned and hosted a forum in July 2004 to discuss the issue. Representatives from state agencies, national organizations, school districts, and associations attended and created the URG based on national air quality guidelines. From 2004 to 2007, the Utah Department of Environmental Quality and the Utah Department of Health conducted three studies in Utah schools. A second meeting of stakeholders was held in November 2007 and was called the Air Quality and Health Summit. Results of the three studies were shared at the Summit and used in revising the URG guidelines. Revised URG guidelines and communication tools were disseminated to schools in 2007.

From 2007 to 2016, the UAP continued to use and promote the revised URG in Utah. Since 2007, there has been an increase in stakeholder interest in changing the recess guidance recommendations as well as an increase in knowledge of health impacts from air quality among the general public. Therefore, the UAP determined it was time to reassess the URG using the perspective of various stakeholders and new science. The UAP scheduled and planned the Air Quality and Health Summit for June 2016. In preparation for the Summit, the UAP planned and conducted an evaluation of the current URG in order to inform the stakeholders during the Summit proceedings.

Evaluation Purpose and Questions

The purpose of this evaluation was to determine if stakeholders agreed with the current URG and to understand the perspective of school districts, parents, school nurses, and local health departments. Additionally, several questions were taken from the 2010 URG evaluation to determine if changes to the URG layout and public health campaigns done during 2012 increased the correct usage and understanding of the URG. Regular evaluation of the URG allows the UAP to better serve Utah schools and communities.

The overall evaluation questions were:

1. Are stakeholders aware of the URG and who uses it?
2. Do stakeholders support the URG?
3. Is the URG being used correctly?
4. What are stakeholders' suggestions to improve the URG?
5. Are there any other tools stakeholders are using other than URG? And why?
6. What are barriers to the implementation of the URG?
7. Are there any stakeholders who would like to receive communication from the UAP?
8. Do stakeholders want ozone guidance for summer?

Methods

Target populations were identified based on stakeholder groups. These included (1) elementary schools, (2) parents, (3) school nurses, (4) local health departments (LHDs), and (5) middle and high schools. There were five different surveys designed to address the usage of the URG for each target population. Samuel Patha designed survey questions aimed at answering the overall evaluation questions with the help of experts in evaluation, data, URG, and asthma; including Evaluation Technical Advisor, Maureen Wilce (CDC), and Utah Department of Health Staff including Epidemiologists Holly Uphold (UAP) and Nathan LaCross (Environmental Epidemiology Program), Program Manager, Nichole Shepard (UAP), Health Program Specialist, Brittany Guerra (UAP), Utah School Nurse Consultant and NASN Director, BettySue Hinkson (EPICC), and Independent Evaluation Consultant, Lori Sugiyama. Questions were multiple choice and open-ended. The surveys were designed to be completed in about 5-8 minutes and were pilot-tested by the UAP.

Next, the surveys were distributed to each target population via email. Elementary, middle, and high school surveys were sent to school principals using a comprehensive list of email addresses from the Utah State Office of Education. The Recess Guidance listserv also was used to distribute the survey to elementary schools. Due to potential overlap between the two lists, the introduction of the survey asked the respondent to please disregard the email if he/she had already taken the survey. The school nurse survey was distributed to all school nurses with assistance from the state school nurse consultant. The LHD survey was distributed through the email addresses of the environmental health department of respective LHDs. The parent survey was distributed through email listservs; social media accounts; and websites of stakeholder groups such as the Patient-Centered Outcomes Research Institute parent group, UAP, Utah Department of Health, Utah Asthma Task Force, Utah Clean Air Partnership (UCAIR), Utah Mom's for Clear Air, and Bureau of Health Promotion Workgroups including health system workgroup, policy workgroup, web workgroup, and school workgroup. Survey results for those living or working in counties with air quality monitoring stations were used for analysis. These included Box Elder County, Cache County, Carbon County, Davis County, Duchesne County, Salt Lake County, Tooele County, Uintah County, Utah County, Washington County, and Weber County.

School districts, school nurses, and local health departments had two weeks to respond to the survey, while parents had three weeks. A reminder follow-up email was sent one week after the initial email. Qualtrics was used to create the survey. Qualtrics and Excel were used to analyze the data. Word Cloud was used to highlight how often a word was used in the open-ended questions. Word Cloud is a pictorial depiction of words. The larger the word, the more often it was mentioned in the responses.

Results

The majority of survey respondents were from Salt Lake, Davis, and Utah counties. The total sample size was 1,025 (excluding parents). The overall response rate was about 31% with 317 of the total sample completing the survey (excluding parents). The response rate ranged from 54% for LHDs to 13% for school nurses. The parent survey was posted on Facebook, sent through stakeholder groups, and shared between parents;

therefore, an exact number of recipients is unknown. Table 1 lists the sample sizes and response rate for each target population.

Table 1: Respondent Sample

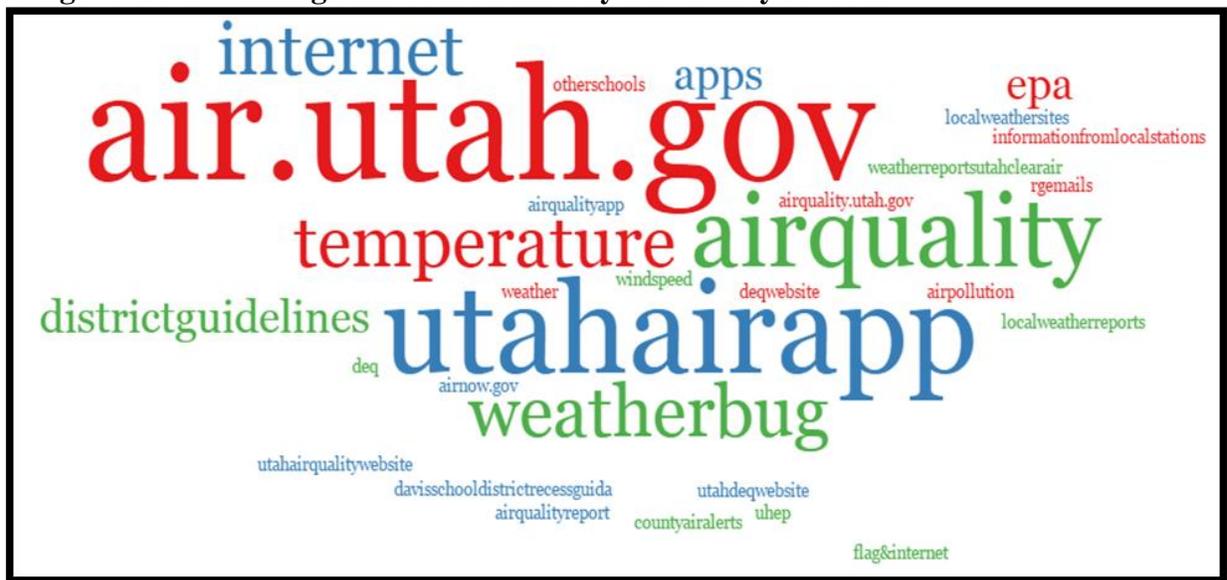
Respondents	# of Surveys	# Responded	Response Rate
Elementary	533	238	45%
Middle and high schools	205	36	18%
School nurses	274	36	13%
LHD	13	7	54%
Total	1025	317	31%
Parents	Unknown	76	Unknown

Elementary Schools

The survey was sent to 533 elementary school administrators; the response rate was 45% with 238 responses. About 70% of the respondents were from Salt Lake, Davis, and Utah counties. About 60% of the respondents were principals, 15% of the respondents were administration staff, 10% of the respondents were teachers, and the remaining 15% included other school staff such as school nurses, secretaries etc. The majority (93%) of respondents said they were familiar with and used the URG. However, 54% of respondents reported using other recess guidance tools. Additionally, the principal makes the decision to use the URG the majority of the time (82%).

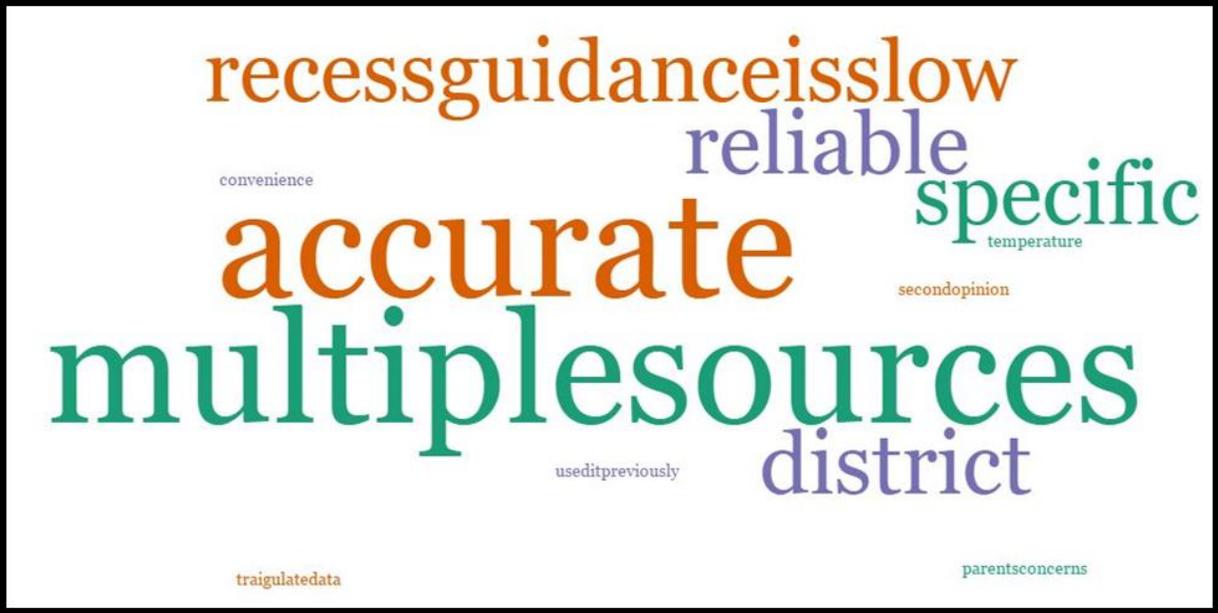
Other commonly used recess guidance tools by elementary school administration or staff include air.utah.gov and UtahAirApp as seen in Image 1 below.

Image 1: Other recess guidance tools used by elementary schools.



Elementary school respondents were asked why they used other recess guidance tools, and the most commonly reported reasons (as shown in Image 2 below) were that other tools are more accurate, other devices were more specific to their school districts, and sometimes it was better to rely on multiple sources. They also mentioned that the emails from the UAP come after recess; when they actually need them well in advance for them to plan.

Image 2: Reasons for using other recess guidance tools.



The majority of the elementary school respondents (84%) agreed that the URG is a useful tool. According to the word cloud below, most did not have any barriers in implementing the URG. However, some struggled with finding alternative tasks for children during indoor recess and 29% agreed that the needs of the teachers and schools affect the use of the URG, including needed break time for teachers.

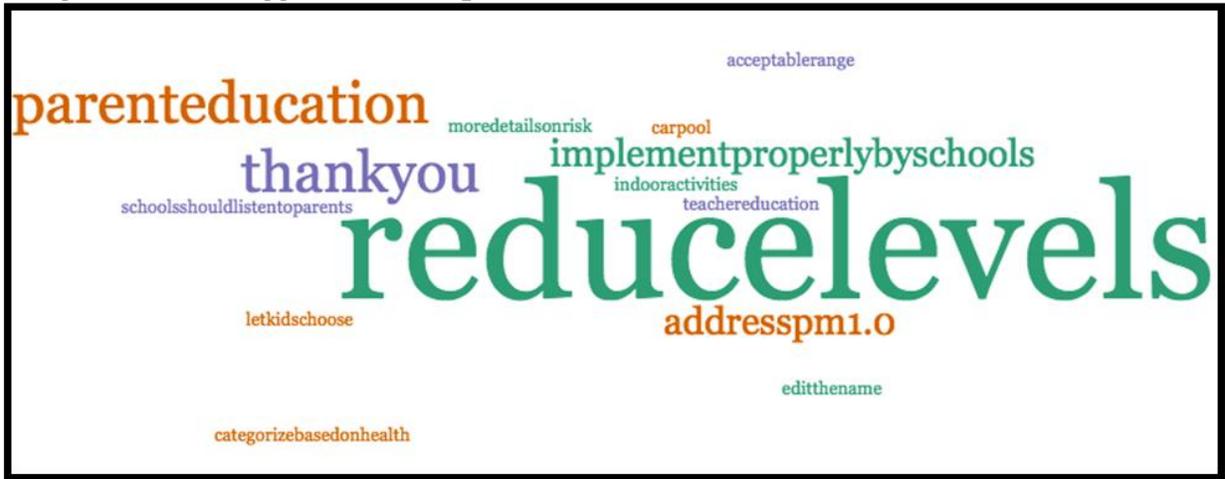
Image 3: Barriers in implementing the URG.



Parents

The majority of respondents had a school-aged child (70%) and were from Salt Lake, Utah, and Davis counties (85%). About 60% were familiar with the URG; however, 44% support their child's school using other recess guidance tools aside from the URG. Most parents mentioned that they would like to see the current PM 2.5 level thresholds lowered to keep their children indoors more often. In addition, parents would like to receive more education on the URG. Below is a word cloud of their responses on how to improve the URG.

Image 4: Parent suggestions to improve the URG.



School Nurses

Overall, school nurse respondents were from Utah, Davis, and Salt Lake counties (70%). The majority of them mentioned familiarity with the URG (72%) and that their schools used the URG (60%). In an open-ended question, many school nurses expressed lack of awareness as a reason for schools not using the URG.

Local Health Departments (LHDs)

Seven out of the 13 LHDs responded to the survey; however, only three completed the survey. All respondents were from Salt Lake and Utah Counties (100%), and all were familiar with the URG (100%). One LHD suggested simplifying the language in the URG to make it more understandable to parents and teachers who are not familiar with the technical terms.

Middle and High Schools

The purpose of the middle and high school surveys was to determine if there was any interest in expanding the URG to middle and high schools for outdoor activities, including sports training, band practice, etc. About 74% of respondents said they would use air quality recommendations for their outdoor activities. However, 86% of the respondents believed that winter air pollution recommendations would be more useful than summer ozone recommendations.

Additional Results

In the 2010 URG evaluation, 11% of survey respondents reported that all students were kept inside for seven to eight days; however, there were no days that year where the 24 hour average of PM 2.5 levels were above 90 and all students would have been recommended to stay indoor for recess. In comparison, in the 2016 evaluation, only 7% of the schools kept all students indoors for seven to eight days, even though there were no days when 24 hour average of PM 2.5 levels were above 90 and all students would have been recommended to stay indoors. See the table for some additional comparisons.

Table 2: Comparison between 2010 and 2016 URG evaluation.

Action taken by schools on poor air quality days	2010 Evaluation	2016 Evaluation
EVER kept students inside due to poor air quality	94%	81%
Kept ALL students indoors for 7-8 days	11%	7%
Kept sensitive students indoors 7-8 days	22%	7%

The following table is a comparison of URG support among stakeholders. The majority of stakeholders supported ozone recommendations, except elementary schools which were slightly less supportive (41%). All the stakeholders were familiar with the URG, including middle and high schools that do not have recess. Except for parents, the majority of other stakeholders agreed that students are kept indoors about the right amount of time according to the URG. Parents reported that children are not kept inside often enough and that they would like more stringent guidelines which keep children indoors more often. Finally, the majority of stakeholders support the URG; however, parents were less supportive. See the table below for more details.

Table3: Results from the 2016 URG evaluation.

URG support statements	Elementary Schools	School Nurses	Parents	LHDs	Middle/high schools
Want ozone recommendations	41%	50%	83%	n/a	74%*
Familiar with URG	85%	72%	60%	100%	45%
Students are kept indoors about the right amount of time according to URG	72%	50%	20%	67%	n/a
Support the URG	82%	86%	49%	67%	n/a
URG keeps students healthy	83%	76%	50%	n/a	n/a

* Asked if they would use any recommendations (PM 2.5 and/or ozone) for outdoor activities. n/a means this question was not asked on the survey.

Conclusion

Overall, the URG evaluation was successful. It highlighted stakeholder differences and interests in the URG and will help the UAP bring all stakeholders together and create support for the URG. Elementary schools reported using air.utah.gov and the UtahAirApp as other recess guidance tools. These are not recess guidance tools; they are used to determine current air quality levels. This suggests that either the question was not clear or people are confused about the difference between recess guidance and air quality monitoring. Comparisons between the URG 2010 and 2016 surveys suggested that there was an increase in teachers using the URG more correctly with only 7% of schools reporting all students kept indoors seven to eight days with zero days when PM 2.5 is above 90 compared to 11% in 2010. This change could be related to differences in the sampling technique between 2010 and 2016 evaluations, random error, recall bias (listed under limitations), or change in air quality from 2010 to 2016. However, changes in the URG format and an increase in educational outreach by UAP, UCAIR, and other organizations since 2010 supports the assumption that there is a decrease in the incorrect usage of the URG among schools. These findings also suggest there is still a need to educate school districts and teachers on how to use air quality monitoring tools along with the URG because, despite having no days in which all students needed to remain indoors, 7% of schools reported that they kept all students indoors.

Potential barriers to successful implementation of the URG include low parental support and logistical issues related to alternative outdoor recess activities. The results suggested that even though there is good support for the URG from most stakeholders, parents are not supportive of the current recommendation levels. This might be due to a lack of education on how to use the URG as many parents identified that they need to receive more education on the URG. Teachers need help in finding and facilitating alternative indoor activities when the air is too bad to go outside. Specifically, because physical activity is so important for growing and learning, teachers should prepare aerobic activities to get students physically active indoors. Due to a possible response bias, interpret with caution the results from the school nurses survey. The response rate was only 13% from school nurses; however, 72% of the respondent school nurses expressed familiarity with URG and 60% mentioned that their schools used the URG.

Many of the school personnel and parents reported that they were grateful for the URG and use it regularly. It is exciting to see that air quality is an important issue on the minds of school officials. The survey also yielded 39 email addresses from school personnel who were interested in receiving email communications from the UAP with air quality alerts and air quality information.

Limitations

A skip logic error occurred during the survey design process, which resulted in some surveys looping back to the beginning of the survey. This might have caused a few respondents to become frustrated and quit the survey before finishing it. However, this issue was identified and quickly fixed; only affecting a few surveys. An incorrect link was sent to elementary schools in the one-week follow-up/reminder email. This was fixed within a few minutes with the correct link being sent out. Another limitation was the low response rate (less than 30%) from school nurses and middle and high schools.

Finally, recall bias may have impacted the accuracy of the results. The survey questions were about events that occurred during the winter of 2016, which was about four to six prior to the survey.

Recommendations

Based on the results of the survey, several recommendations are listed below:

1. Schools and teachers need additional training on alternative indoor activities for students when they are kept inside on poor air quality days.
2. There is a need for parent education. This could include educational videos about the URG from the UAP. This would help to build parent support for the URG.
3. There is a need for more collaboration on the URG designing process with the local health departments.
4. School districts need more timely and consistent URG updates, well in advance, for them to plan for the day. The UAP should work with school administrators and determine when the best time is to send out updates (i.e. before recess, before school, etc.) and be consistent.
5. Schools and teachers need additional training on how to use the URG and how to use it with multiple air quality sources. The UAP should partner with other air quality sources to incorporate the URG into their platforms.
6. Consider lowering the PM 2.5 levels based on parents' concerns to keep students indoors more often during recess.
7. Create summer ozone recommendations for recess.
8. Design air quality guidance for middle and high schools.