

ENVIRONMENTAL HEALTH OFFICER'S KNOWLEDGE OF SENSORY DEPRIVATION TANKS IN BC

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Outline

- Introduction
- Literature Review
- Methods
- Results
- Discussion
- Conclusion



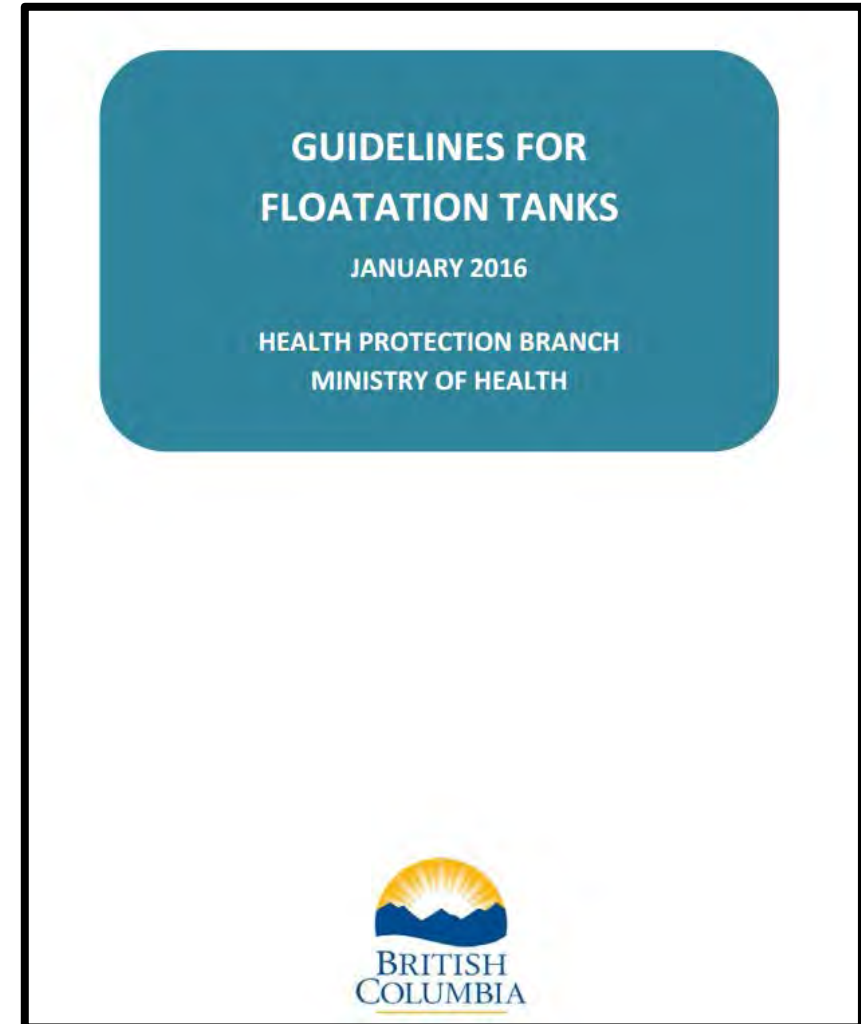
What is a Floatation Tank?



Importance to the Public Health Field

EHOs Inspect PSEs

- Recently resurfaced into the PSE field
- Sanitation and disinfection of the tank
 - Prevent pathogen growth and spread
- Lack of legislation in this industry
 - Guidelines are used in place



Literature Review

Recreational Water Disinfection

- Chlorination and bromination for primary disinfection with filtration
- Ozone and UV can be supplemental forms of disinfection
- Hydrogen peroxide has been suggested by the community

Literature Review

Other Countries Legislation and Guidelines

- Australia has an extensive guideline for PSEs
 - Floatation tanks only has a small paragraph
- USA leave it up to the states to provide guidelines
 - National Sanitation Foundation
 - Based on product manufacturers and guidelines for recreational waters/pools
 - Floatation Tank Association
 - Non-governmental
 - Standards with no chemical disinfection

Literature Review

BC Guidelines

- Released January 2016
- Broken down into
 - Facility – disinfection, filtration, construction
 - Operations – operation and maintenance, general sanitation

Purpose

- Examine EHO's knowledge about sensory deprivation tanks
 - Length of time EHOs have been in the field
 - Age
 - Geographic location

Methods

- A survey was developed in Google Forms and Survey Monkey
- Disseminated to EHOs through e-mail with help from Gordon Moseley
- Demographic questions & 15 testing questions
- Results were then analyzed in Excel & SAS

The image displays three sequential screenshots of a survey form titled "Sensory Deprivation Tank Knowledge".

Section 1 of 6: This section contains an introductory letter. It begins with "Dear Respondent," and explains that the respondent is invited to participate in a research project. The project aims to examine Environmental Health Officers' understanding of sensory deprivation tanks. It mentions that the respondent is affiliated with the Environmental Health program at Bishop Cleeve Institute of Technology and that their participation is required for graduation. The purpose is to determine EHOs' general understanding of sensory deprivation tanks. It states that following the letter is a brief questionnaire that should take approximately three minutes to complete. It asks for a variety of questions about sensory deprivation tanks. It includes a "Voluntary Participation" section stating that participation is completely voluntary and that the respondent can choose whether or not to complete the survey, with the option to withdraw at any point without penalties. A "Confidentiality and Anonymity" section explains that the data collected will be used for knowledge building and that there are no known associated risks with participating. It states that participation will be anonymous and all information is confidential, with the questionnaire being controlled in Google Forms which sends the respondent's responses back to the researcher. It notes that responses will only be shared with the researcher and that the overall results will be summarized and presented in a report format. A "Contact for further information:" section provides an email address: "You may contact me via email at Alfisaal.ambrose@bt.com if you have questions or concerns regarding the questionnaire or if you would like a copy of the results. If you have concerns about your rights as a participant in this study you may contact my supervisor, Helen Hewcock at helen.hewcock@bt.com. Thank you."

Section 2 of 6: This section is titled "Consent Form" and contains a "Disclosure Statement." It asks the respondent to agree to take part in the study, which has been explained to them in the previous written letter. It states that the respondent understands that any questions they answer will be anonymous and confidential, and that the questionnaire program (Google Forms) will not be able to contact them with any of the answers they provide. It also states that their identity will not be disclosed to anyone. It concludes with "I understand that my participation is completely voluntary, and I may withdraw from the study at any time." Below this, there is a "I consent" section with two radio button options: "Yes" and "No".

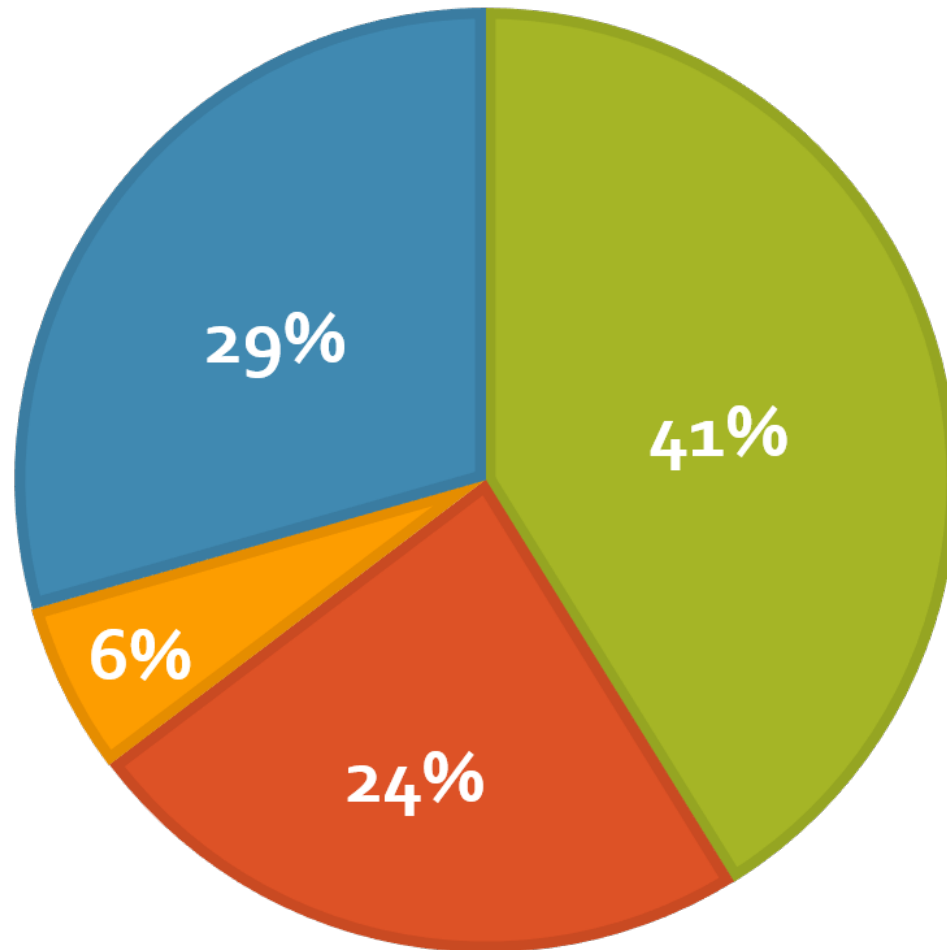
Section 3 of 6: This section is titled "Questionnaire - Demographics" and contains two questions. The first is "What is your gender?" with three radio button options: "Male", "Female", and "Other". The second is "What is your age?" with five radio button options: "20-30 years old", "31-40 years old", "41-50 years old", "51-60 years old", and "61 years and over".

Results

- 33 Participants
- Average score: **7.6/14 (54%)**
- Lowest score: **4/14 (29%)** – achieved twice
- Highest score: **12/14 (86%)**

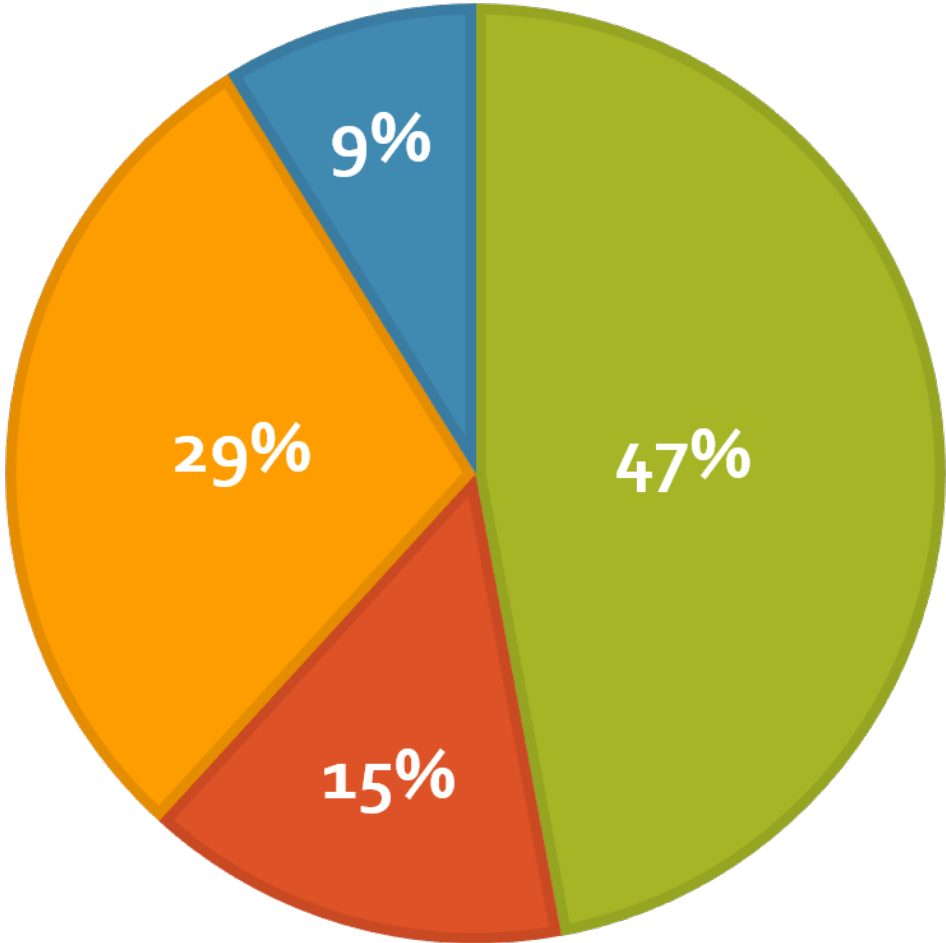
WHAT DO FLOAT SPAS ADD TO THE WATER OF SENSORY DEPRIVATION TANKS TO ALLOW PEOPLE TO FLOAT?

■ Sodium Chloride ■ Magnesium sulphate ■ Potassium chloride ■ Do not know

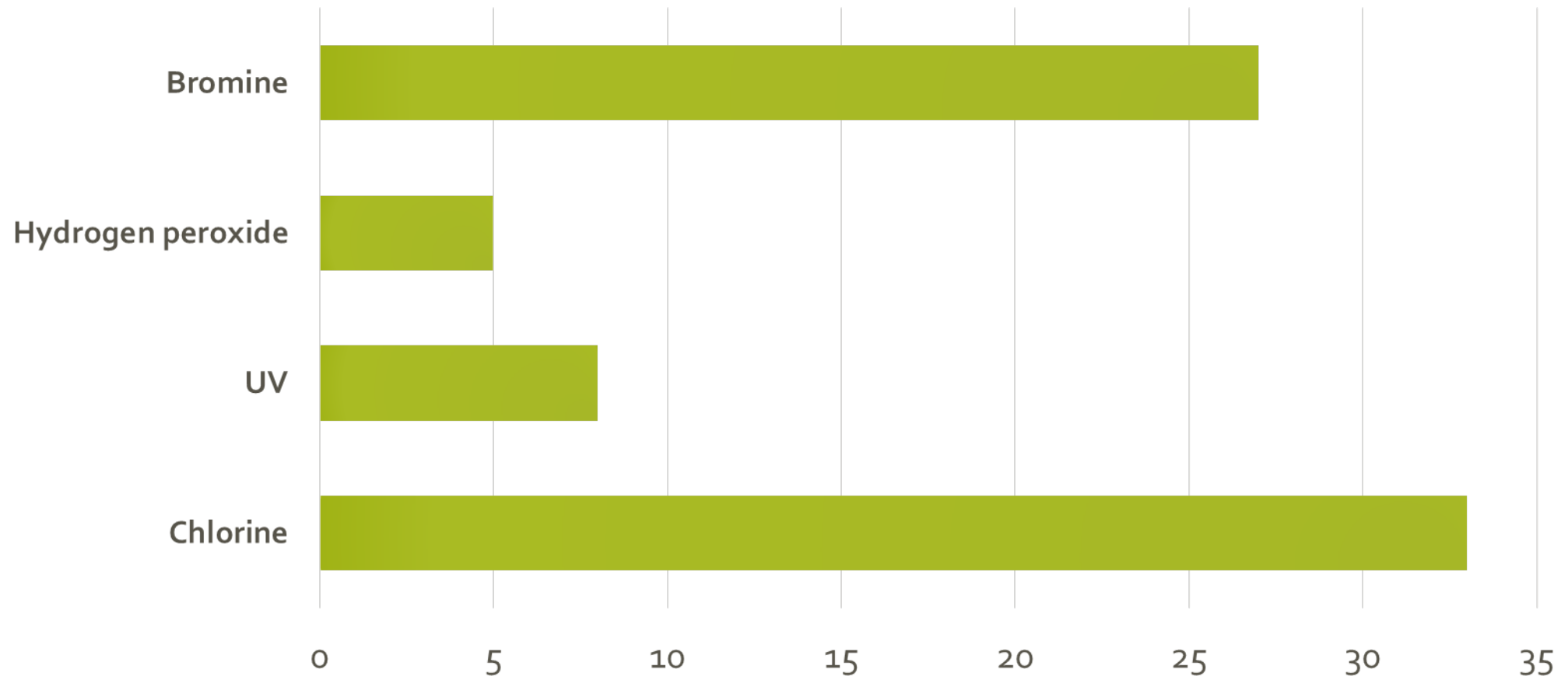


WHICH REGULATIONS ARE FLOATATION TANKS REGULATED UNDER?

■ Regulated Activities ■ Pool Reg ■ Both ■ Do not know



Acceptable primary disinfectants for the tank water? Select all that apply

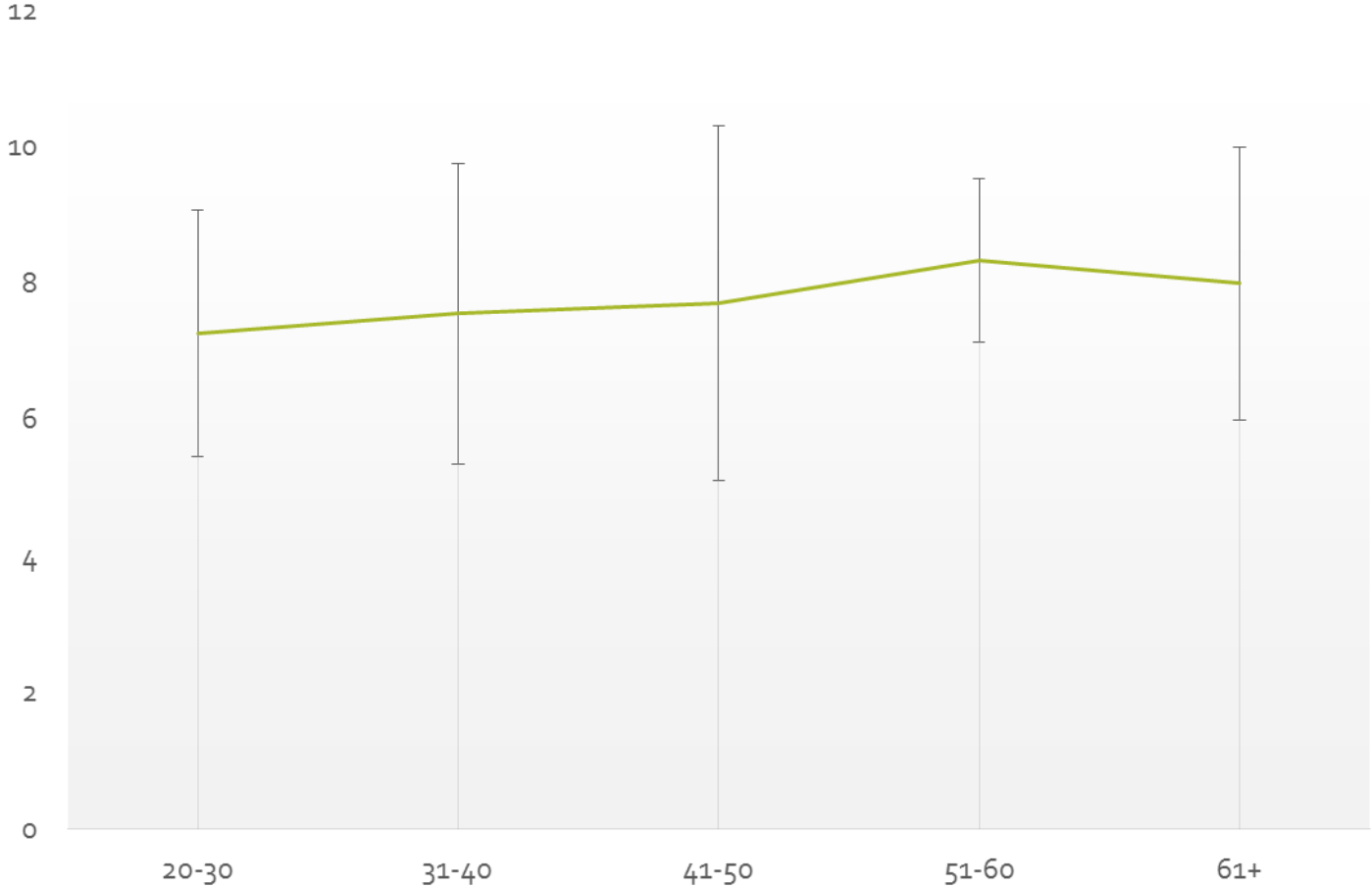


Results

Hypothesis	Participants	Score (out of 14)
Years in the Field	Less than 5: 12	7.0
	More than 5: 21	8.0
Age - Overall	20-30: 11	7.2
	31-40: 9	7.6
	41-50: 7	7.7
	51-60: 3	8.3
	61+: 3	8.0
Age - Grouped	20-40: 20	7.4
	41+: 13	7.9
Geographic Location	Urban: 16	8.0
	Semi-urban: 8	7.4
	Rural: 8	7.0

Results

Knowledge Scores by All Age Categories



Results

Comparison	Test	p-value
Number of years worked	t-test	0.1879
Condensed Ages	t-test	0.4284
All Ages	ANOVA	0.9416
Geographic Location	ANOVA	0.5071

Discussion of Results

- All three null hypotheses were not rejected ($p\text{-value} > 0.05$)
- Overall weak knowledge in EHOs across groups
 - Average score was 54%
- Small sample size



Recommendations

- More time
 - Develop a more comprehensive survey
 - Response collection
 - Pilot test survey longer
- Have access to EHOs e-mail
- Larger survey

Limitations

- E-mailed surveys had to go through another person
 - Unable to send reminder e-mails
- Insufficient time



Future Research

- Sensory deprivation tank water analysis
 - Microorganism growth
 - Disinfection effectiveness
- Replication of this study
 - More comprehensive survey
 - Reflective of new guidelines
- Opinion survey between EHOs and float spa owners/operators

Conclusion

- Overall weak knowledge regarding health and safety of sensory deprivation tanks
- Weak statistical significance
 - Small sample size
- Several avenues for future research



ACKNOWLEDGMENTS

Helen Heacock, Vanessa Karakilic, Jessica Ahn

QUESTIONS?

Image References

- <https://media-cdn.tripadvisor.com/media/photo-s/06/a7/62/98/float-nashville.jpg>
- <https://s-media-cache-ako.pinimg.com/736x/e5/1b/d5/e51bd5696ed1956e98149a69cob11a84.jpg>
- http://static1.squarespace.com/static/526dad1ee4b08fcd5caced4d/t/5277f38ae4b02d52327f34d7/1383592844922/l-sopod_Flotation_Tank.jpg
- http://www2.gov.bc.ca/assets/gov/health/keeping-bc-healthy-safe/pses/flotation_tank_guidelines_jan_2016.pdf
- http://images.mentalfloss.com/sites/default/files/styles/article_640x430/public/floating_o.jpg
- <http://sixsigmadsi.com/wp-content/uploads/2015/03/sample-size.jpg>
- <https://www.healthyfamiliesbc.ca/sites/hfbcprox-prod.health.gov.bc.ca/files/image/ha-logos-combined-sm.jpg>
- <http://floatspa.com/wp-content/uploads/2012/09/004.jpg>
- <http://www.bluetab.net/wp-content/uploads/2015/06/Real-time-marketing.jpg>