

**RULES AND REGULATIONS GOVERNING  
INSTITUTIONAL PLAYGROUNDS**

**ECONOMIC IMPACT STATEMENT**

Title 5 Guam Code Annotated, Chapter 9, Article 3

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## SUMMARY

The Department of Public Health and Social Services (DPHSS) is proposing to adopt the “*Rules and Regulations Governing Institutional Playgrounds*” (the “Regulations”) and apply this document for the regulation of all playgrounds utilized on Guam’s institutional facilities. Institutional playgrounds are playgrounds used by children ages 6 months through 12 years in child care centers and schools regulated by the Division of Environmental Health (DEH) of DPHSS.

The main goal of the proposed Regulations is to establish standards, which are based on available research, to improve safety of children who use Institutional Playgrounds. In Fiscal Year 2016, there were a total of 39 child care centers and 42 elementary schools regulated by DEH. If adopted, the proposed regulations will govern the operation of these 81 institutional facilities and impact the health and safety of about 20,000 children who use institutional playgrounds on island.

In accordance with Article 3 of Title 5 GCA Chapter 9, DEH prepared this economic impact statement prior to finalizing the proposed regulations because it anticipates that compliance costs would exceed \$500,000. DEH analyzed available data from the U.S. Centers for Disease Control and Prevention (CDC), Consumer Product Safety Commission (CPSC), and survey results from affected local, regulated institutions. This report focuses on the four provisions in the proposed regulations that DEH believes will have the greatest financial impact. These four provisions are: (1) age separation; (2) signage and/or labeling; (3) surface materials; and equipment compliance.

Both direct and indirect economic impacts are presented in this report. Direct costs include medical expenses incurred to treat or alleviate injuries, while indirect costs are work or earnings loss by parents or guardians who have to take care of the injured child. The analysis presented represents DEH’s best estimate of these economic impacts. Other possible impacts such as pain and suffering, time lost from class, and possible lawsuits are not quantified in this analysis but are also equally important and should also be mentioned.

To determine the economic impact the adoption of the proposed Regulations may have on the affected institutions, a survey questionnaire was distributed to all 81 establishments. Fifty-four responses (67%) were received. DEH attempted to do a census survey, but instead conducted a sample survey as not every institution responded to the questionnaire.

Survey results indicated that the adoption of the proposed regulations will have a direct total financial impact of \$916,073 to the industry in the first two years of its implementation. After this period, the annual financial cost will be substantially smaller as only the cost of maintenance of playground equipment, which was not addressed in the survey, will remain. The one-time costs for the replacement, modification, and/or removal of structures to come into compliance with the provisions of the proposed regulations will no longer be applicable.

- Age separation (Projected one-time cost: \$110,928)
- Signage and/or labeling (Projected one-time cost: \$86,899)
- Surface materials (Projected one-time cost: \$337,066)

- Equipment compliance (Projected one-time cost: \$381,180)

The economic impact to the industry is \$15.49/day for the first two years if the costs are equally distributed to all the affected institutional facilities. While the increased costs that will result from the adoption of the proposed regulations may be deemed as an adverse impact to the affected businesses, the overall impact will be beneficial to the economy and the health of the population from the expected reduction in the number of playground injuries on island and its associated economic burden. The collective reduction of the economic burden derived from playground injuries through the implementation of preventive measures mandated in the proposed regulations will outweigh the actual and imagined cost that the institutions will experience in the adoption of the proposed regulations.

CPSC's National Electronic Injury Surveillance System (NEISS) is the only source of national data for playground injuries. NEISS collects injury data associated with playground equipment from U.S. hospital emergency departments across the country. In 2015, NEISS estimated that 221,468 playground-related injuries required hospital emergency room treatments for children aged 0-14 in the U.S and its territories. This estimate translates to a rate of about 69 per 10,000 children in that age group that needed emergency room treatment due to injuries sustained in playgrounds. Unfortunately, there is no local data found to corroborate this estimate. If the NEISS's projected rate is applied to Guam using the 2015 population projection by the United States Census Bureau, approximately 284 children aged 0-14 are injured in playgrounds and require emergency room treatments per year.

The most common types of playground-related injuries are fractures and contusions/abrasions, which account for 56% of all playground injuries. Using the 2015 estimate of population by the United States Census Bureau, this would equate to about 159 children between the ages of 0-14 who suffer from fractures and contusions in Guam's playgrounds every year. Based on CDC's WISQARS (Web-based Injury Statistics Query and Reporting System), the average medical and work loss cost of fractures and contusions in children aged 0-14 amounted to about \$15,075 per emergency department visit in 2010. If 284 children aged 0-14 suffer from playground injuries annually, this means that the economic burden of emergency room treatments due to playground-related fractures and contusions on Guam is about \$2,396,925.

While the implementation of the "Rules and Regulations Governing Institutional Playgrounds" is not expected to prevent all playground injuries on island, it will decrease the potential for these types of injuries from happening. The projected annual cost of fractures and contusions/abrasions from playground injuries of \$2.4 million greatly offsets the two-year compliance cost of about \$1 million as estimated from the results of the survey.

## **I. Purpose and Need**

Pursuant to Title 10 GCA Chapter 21, a Sanitary Permit from the Division of Environmental Health (DEH) of the Department of Public Health and Social Services (DPHSS) is required for the lawful operation of businesses. The issuance of a Sanitary Permit enables DEH to regulate the applicable establishments to ensure that these facilities are sanitary and operate in such a manner as to protect the public from environmental hazards. Businesses possessing a Sanitary Permit are required to allow the access and inspection of its regulated facility by DEH. One type of regulated business is the institutional facility, which includes child care centers and school buildings.

DEH conducts compliance inspections of institutional facilities to ensure these establishments operate in a manner, and possess the physical assets, to protect the health and safety of children and adults occupying these facilities. These regulatory inspections are conducted through the implementation of adopted rules and regulations that provide the sanitary operation and physical requirements that institutional facilities must comply with, such as:

- Construction and maintenance of the establishment
- Capacity and occupancy
- Water supply and plumbing of the establishment
- Hand-washing and toilet facilities
- Lighting and ventilation of the establishment
- Outdoor space
- Grounds and playground equipment
- Waste removal
- Insect and rodent control

Currently, DEH imposes the “Rules and Regulations Pertaining to School Sanitation” and the “Rules and Regulations Governing Child Care Facilities” for the regulatory control of these institutional facilities. The two regulatory documents were adopted in 1983 and 1984, respectively. The childcare regulations contain provisions for play areas but do not address the safety concerns of playground-related injuries. Although the school regulations do reference the playground safety requirements of the U.S. Consumer Product Safety Commission, it is not enforceable as the requirements were never formally adopted by the Department.

According to the U.S. Centers for Disease Control and Prevention (CDC), more than 200,000 pre-school and elementary children are treated for playground-related injuries at emergency departments each year and 75% of these injuries occur at Institutional Playgrounds<sup>1</sup>. About 45% of all playground-related injuries are severe, resulting in fractures, concussions, dislocations, and amputations<sup>2</sup>. These injuries result in pain and suffering for the injured child, time lost from class instruction, medical costs, work loss by parent or guardian needing to take care of the injured child, and possible litigation by parents or guardian. The Office of Technology Assessment in 1995 estimated that the economic loss for such injuries totaled \$1.2 billion<sup>1</sup>.

Play is an important aspect of a child’s life and playgrounds provide the opportunity to develop children’s physical, cognitive, and social skills. As such, it is important that children be

provided a safe and conducive environment for play. However, it is alarming to note that 75% of all playground-related injuries occur in Institutional Playgrounds and as many as 5 deaths are associated with playground equipment every year<sup>3</sup>. This makes playground injuries a significant public health concern and the proposed regulations seek to address this issue.

The effect of playground safety regulations in decreasing injury rates has been evaluated in a study done in North Carolina. The researchers noted a 22% decline in the annual rate of reported, medically-attended injuries in regulated child care facilities over three years<sup>4</sup>. This decline was associated with a decrease in observed hazards on child care playgrounds. With the adoption of the “*Rules and Regulations Governing Institutional Playgrounds*,” DPHSS seeks to prevent and reduce the number of playground-related injuries on island. Many of the hazards associated with playground injuries are addressed in the proposed regulations. For example, by limiting the height of equipment and providing adequate fall zones and protective surfaces, as provided in the proposed regulations, many injuries and deaths caused by falls would not occur or would be less severe.

## **II. Financial Impact**

The most significant provisions that would likely have the greatest financial impact to institutional facilities are age separation; signage and/or labeling; surface materials; and equipment compliance.

1. The proposed regulations will require age separation barriers for playgrounds intended for use by children of different age groups. Age groups include school age children (ages 5 – 12 years old), pre-school age children (2 – 5 years old) and toddlers (6 months – 2 years old). As a result, establishments will need to provide age separation to show the distinct areas for these different age groups. To comply with this requirement, the facilities may need to add or modify landscaping structures, or provide walls and/or fences which may come at a significant cost to them.
2. Signage and/or labels will be required by the proposed regulations to be posted in the playground area, or on the playground equipment, to give some guidance to supervisors as to the age appropriateness of the equipment. To meet this requirement, some establishments may need to purchase labels for playground equipment or construct conspicuous signage on the playground. These will cause additional expenses on the affected facility.
3. For establishments with elevated playground equipment such as swings or slides, the proposed regulations will require protective surface material to minimize impact of falls. Two options are available for surfacing: unitary materials, such as rubber mats and tiles, or loose-fill materials, such as wood fiber and rubber mulch. The cost of compliance will most likely derive from the purchase and installation of these surface materials.
4. The proposed regulations will require a number of parameters aside from those mentioned above. This may result in the facilities having to modify, replace, or remove

some equipment to come into compliance with the proposed regulations. As such, the cost of these renovations or constructions will impact the establishments.

To assess the direct financial impact the proposed regulations may have on the 81 institutional facilities on island, as a result of the adoption and implementation of the four provisions noted above, DPHSS attempted to conduct a census survey. However, only 67% of the total establishments provided a response. Thus, the census was converted to a sample survey. This survey, which was prepared in the form of a questionnaire (**Appendix A**), asked the following ten questions to those applicable institutional facilities possessing a Sanitary Permit with the Department:

Part I: Age Separation

1. Is your playground intended for use by children of different age groups?
2. If “YES” and the Rules and Regulations Governing Institutional Playgrounds are adopted, how do you plan to separate your play areas if they are not already separate?
3. What is the anticipated cost your business will incur in developing and providing the age separation barriers?

Part II: Signage and/or Labeling

4. Is your playground intended for use by children of different age groups?
5. If “YES” and the Rules and Regulations Governing Institutional Playgrounds are adopted, how do you plan to provide signage and/or labeling?
6. What is the anticipated cost your business will incur in developing and providing the signage and/or labeling?

Part III: Surface Material

7. Does your playground have existing elevated equipment that requires protective ground surface material?
8. What is the total cost your business will likely incur to purchase and install protective ground surface material?

Part IV: Equipment Compliance

9. Does your playground have existing equipment that requires modification, removal, or replacement to come into compliance?
10. What is the total cost your business will likely incur to ensure all requirements in the proposed Rules and Regulations Governing Institutional Playgrounds are met?

The establishments were given five weeks to submit their completed survey; DPHSS received a total of 54 responses. Not all of the respondents answered every question or followed the instructions given. Graphical results of the survey are provided in **Appendix B**.

Part I. Age Separation

- Forty-two respondents (78%) indicated that their playground is intended for use by children of different age groups.

- Forty respondents (95%) that noted that their playground is intended for use by children of different age groups revealed that age separation would be provided by the following means (*Note: Several respondents checked multiple answers*):
  - Landscaping: 10
  - Physical Structures: 21
  - Other: 16
- Two respondents did not provide an answer.
- When asked, what the anticipated cost their business may incur to provide the necessary age separation, most (28 respondents – 72%) selected the cost-range of \$1,500 or greater, which was followed by \$500 - \$999 (4 respondents – 10%) and \$1,000 to \$1,499 (4 respondents – 10%). Around 7% (3 respondents) indicated that the impact would be from \$0 to \$499. Forty-two responses were expected for this question since that was the number of respondents who had indicated that their playground is intended for use by children of different age groups; however, only 39 actually responded to this question about the anticipated cost.

Based on the results of the survey, most institutional playgrounds are intended for use by children of different age groups. In addition, more than two-thirds would expect to expend more than \$1,500 to effectuate the provision. It was not made clear in the questionnaire if such cost is a monthly, yearly, or other date-related expense, or if this is a one-time cost.

In determining the projected direct economic impact the institutional facilities would sustain in the implementation of this provision, the highest end of each price range (Question 3 of Part I) was multiplied by the number of affected institutions, which was determined by the number of respondents for each cost range and its corresponding percentage of the total number of surveyed institutions. For the responses of “\$1,500 and above,” the lower end of the range was used in the calculation. As a result, the estimated compliance cost for this provision would be \$110,928 based on the survey responses (Table 1).

Cost Range	Respondents	Number Surveyed	Financial Impact
\$0 - \$499	3 = 3/39 = 8%	8% x 81 = 6.5	\$499 x 6.5 = \$3,244
\$500 - \$999	4 = 4/39 = 10%	10% x 81 = 8.1	\$999 x 8.1 = \$8,092
\$1,000 - \$1,499	4 = 4/39 = 10%	10% x 81 = 8.1	\$1,499 x 8.1 = \$12,142
\$1,500 and above	28 = 28/39 = 72%	72% x 81 = 58.3	\$1,500 x 58.3 = \$87,450
<b>TOTAL</b>	<b>100%</b>	<b>81.0</b>	<b>\$110,928</b>

Table 1. Estimated financial impact to Guam’s institutional facilities to implement the age separation provision of the proposed *Rules and Regulations Governing Institutional Playgrounds*.

## Part II. Signage and/or Labeling

- Forty-two respondents (78%) said that their playground is intended for use by children of different age groups.
- Forty respondents (95%) that noted that their playground is intended for use by children of different age groups revealed that signage and/or labeling would be provided by the following means (*Note: Several respondents checked multiple answers*):
  - Conspicuous Signage: 19
  - Labeling of Equipment: 27
  - Other: 9



- Two respondents did not provide an answer.
- Forty, instead of the expected forty-two, responded to the question about the anticipated cost to provide signage and/or labeling. Fifteen (37%) answered that the cost would be \$1,500 or greater
- Fourteen (34%) indicated that the anticipated costs would be between \$0-\$499
- Seven (17%) said that it would cost them between \$500-\$999 to provide signage and labeling
- Finally, five (12%) respondents said the costs would be between \$1,000-\$1,499

In determining the projected direct economic impact the institutional facilities will sustain in the implementation of this provision, the highest end of each price range (Question 3 of Part II) was multiplied by the number of affected institutions, which was determined by the number of respondents for each range and its corresponding percentage of the total number of surveyed institutions. For the responses of “\$1,500 and above,” the lower end of the range was used in the calculation.

Based on the results of the survey most institutions will be labeling equipment as a primary way of complying with this provision. Assuming that 76% of institutions (61) will incur a cost for signage and labeling, the amount would be \$1,424 per institution. The total cost for all institutions to comply would equate to \$86,899 over a 2-year period. (Table 2)

Cost Range	Respondents	Number Surveyed	Financial Impact
\$0 - \$499	14 = 14/41 = 34%	34% x 81 = 27.5	\$499 x 27.5 = \$13,723
\$500 - \$999	7 = 7/41 = 17%	17% x 81 = 13.8	\$999 x 13.8 = \$13,786
\$1,000 - \$1,499	5 = 5/41 = 12%	12% x 81 = 9.7	\$1,499 x 9.7 = \$14,540
\$1,500 and above	15 = 15/41 = 37%	37% x 81 = 29.9	\$1,500 x 29.9 = \$44,850
<b>TOTAL</b>	<b>100%</b>	<b>80.9</b>	<b>\$86,899</b>

Table 2. Estimated financial impact to Guam’s institutional facilities to implement the signage and/or labeling provision of the proposed *Rules and Regulations Governing Institutional Playgrounds*.

### Part III. Surface Material

- Thirty respondents (55%) revealed that their playgrounds have existing elevated equipment that requires protective ground surface material. Three respondents (6%) did not answer this question. Twenty-one respondents (39%) answered no to this question.
  - Twenty-two respondents indicated the total cost would be \$5,000 or greater.
  - Six respondents each indicated the total cost would be \$2,000 to \$2,999 and \$3,000 to \$4,999.
  - One respondent each indicated the total cost would be \$1,500 to \$1,999 and \$0 to \$499.
  - Three respondents indicated the total cost to be \$500 - \$999.
- Thirty responses were expected for the total cost of surface materials since that was the number of responses to having existing elevated playground equipment. However, 39 responses were noted in the cost section of Surface Materials.

Based on the survey more than half of the institutions would require surface material. In addition, the majority of the institutions would incur a cost of \$5,000 and above to purchase and install protective ground surface materials. Some respondents commented that it would be necessary to resurface and level the entire playground. Others currently have surfacing materials that need to be upgraded.

In determining the projected direct economic impact the institutions will sustain in the implementation of this provision, the highest end of each price range (Question 2 of Part III) was multiplied by the number of affected institutions, which was determined by the number of respondents for each range and its corresponding percentage of the total number of institutions. For responses of “\$5,000 and above,” the lower end of the range was used in the calculation. As a result, it is estimated that the cost would be \$337,066 based on the survey responses (Table 3).

Cost Range	Respondents	Number Surveyed	Financial Impact
\$0 - \$499	1 = 1/39 = 3%	3% x 81 = 2.4	\$499 x 2.4 = \$1,198
\$500 - \$999	3 = 3/39 = 8%	8% x 81 = 6.5	\$999 x 6.5 = \$6,494
\$1,000 - \$1,499	0	0	0
\$1,500 - \$1,999	1 = 1/39 = 3%	3% x 81 = 2.4	\$1,999 x 2.4 = \$4,798
\$2,000 - \$2,999	6 = 6/39 = 15%	15% x 81 = 12.2	\$2,999 x 12.2 = \$36,588
\$3,000 - \$4,999	6 = 6/39 = 15%	15% x 81 = 12.2	\$4,999 x 12.2 = \$60,988
\$5,000 and above	22 = 22/39 = 56%	56% x 81 = 45.4	\$5,000 x 45.4 = \$227,000
<b>TOTAL</b>	<b>100%</b>	<b>81.1</b>	<b>\$337,066</b>

Table 3. Estimated financial impact to Guam’s institutional facilities to implement the surface materials provision of the proposed *Rules and Regulations Governing Institutional Playgrounds*.

#### Part IV. Equipment Compliance

- Thirty-seven of respondents (69%) indicated that they have equipment that requires modification, removal, or replacement to come into compliance.
  - Twenty-nine respondents indicated it would cost \$5,000 and above to come into compliance.
  - Six indicated it would cost \$3,000 to \$4,999.
  - Two indicated it would cost \$2,000 to \$2,999.
- One respondent indicated the cost to be \$1,000 to \$1,499 and \$1,500 to \$1,999.

The direct financial impact that will be borne by the institutions from this provision will derive from modification, removal, or replacement of existing equipment and playground area. The cost may differ depending on the size of the playground area as well as the amount of equipment. Additional costs may occur as a result of routine maintenance of equipment. The indirect cost associated with coming into compliance may occur through the time lost while modifications are being made.

Using the results of the survey, it is assumed that 69% of all institutions (56) will need to begin implementing the requirements to come into compliance upon the adoption of the “Rules and Regulations Governing Institutional Playgrounds.” The direct monetary impact to the affected institutions will be about \$5,524 each. This equates to a total of \$381,180 over a 2-year period (Table 4).

Cost Range	Respondents	Number Surveyed	Financial Impact
\$0 - \$499	0	0	0
\$500 - \$999	0	0	0
\$1,000 - \$1,499	1 = 1/39 = 3%	3% x 81 = 2.4	\$1,499 x 2.4 = \$3,598
\$1,500 - \$1,999	1 = 1/39 = 3%	3% x 81 = 2.4	\$1,999 x 2.4 = \$4,798
\$2,000 - \$2,999	2 = 2/39 = 5%	5% x 81 = 4.1	\$2,999 x 4.1 = \$12,296
\$3,000 - \$4,999	6 = 6/39 = 15%	15% x 81 = 12.2	\$4,999 x 12.2 = \$60,988
\$5,000 and above	29 = 29/39 = 74%	74% x 81 = 59.9	\$5,000 x 59.9 = \$299,500
<b>TOTAL</b>	<b>100%</b>	<b>81.0</b>	<b>\$381,180</b>

Table 4. Estimated financial impact to Guam’s institutional facilities to implement the other provisions of the proposed *Rules and Regulations Governing Institutional Playgrounds*.

### Total Financial Impact

Among the four provisions of the proposed “Rules and Regulations Governing Institutional Playgrounds” evaluated in the survey, coming into compliance with the requirements in the proposed regulations will likely have the greatest financial impact to the institutional facilities, as 69% of all institutions will need to modify, remove, or replace existing equipment at a total estimated cost of about \$381,000. Complying with the surface material requirements is expected to cost 56 institutions almost \$337,000. This was followed by the one-time cost of about \$111,000 to comply with the age separation provision. The signage and/or labeling requirement will have the least monetary impact to the institutions at \$87,000.

The proposed regulations provide a two-year time frame from the date of its adoption for all the institutional facilities to come into compliance with all its provisions. This means that the total estimated direct financial impact of \$916,073 is an expense that can be spread over a two-year period for the affected facilities (Table 5).

Following the two-year transition period, and thereafter, the amount will be greatly reduced as the cost of the equipment will no longer be applicable.

<b>Total Direct Cost of Adopting the Rules and Regulations Governing Institutional Playgrounds</b>		
Requirement	Anticipated Cost	Comments
Age Separation	\$110,928	Institutions will be required to have age separation barriers for playgrounds intended for use by children of different age groups.
Signage and/or Labeling	\$86,899	Institutions will be required to post signage and/or labels in the playground area or on the playground equipment to give some guidance to supervisors as to the age appropriateness of the equipment.
Surface Materials	\$337,066	Protective surface material will be required for playgrounds with elevated equipment, such as swings and slides, to minimize impact of fall.
Coming into Compliance	\$381,180	Modification, replacement, or removal of equipment to come into compliance with other provisions of the proposed regulations.
<b>ANTICIPATED TOTAL DIRECT COST IN THE FIRST YEAR = \$916,073</b>		

Table 5. Financial impact of adopting the proposed Rules and Regulations Governing Institutional Playgrounds based on the cost analyses of implementing the four significant requirements that would likely have the greatest economic impact to the industry. \*The higher end of the cost range was utilized for the calculation.

It is important to note that the installation of the approved surface material in the playground is only necessary if the institutional facility decides to keep or install the applicable, elevated equipment on its premises. The institutional facility is not required by any existing, or the proposed playground rules and regulations, to provide such equipment. Instead, the facility may elect to remove these elevated equipment, or decline to install them, so not to provide the required surface materials. As a result, the financial impact to the affected institutional facilities, specific to the surface materials requirement, may not actually apply or is significantly less than calculated, to cover the expenses of removing the elevated equipment from the premises.

### Economic Burden of Playground-Related Injuries

The succeeding statistics are derived mainly from the U.S. Consumer Product Safety Commissions' National Electronic Injury Surveillance System (NEISS). NEISS is the only source for national data regarding playground-related injuries. It keeps statistics on playground equipment-related deaths and injuries that are recorded in hospital emergency rooms and records only injuries that are product-related. Moreover, NEISS collects only emergency room data, providing only information on the more serious playground equipment-related injuries. Therefore, the estimates provided below may be considered conservative.

In 2015, NEISS estimated that 221,468 playground-related injuries required hospital emergency room treatments for children aged 0-14 in the U.S and its territories for an incidence rate of about 69 per 10,000 children<sup>5</sup>. Because no local data for playground injuries is available, we can apply this incidence rate to Guam by using the 2015 population projection by the United States Census Bureau<sup>6</sup>. This estimation would result in approximately 284 Guam children aged 0-14 who are injured in playgrounds and require emergency room treatments per year. However, the number of playground-related injuries may actually be higher. According to a study conducted by the Arizona Department of Health Services in 1993, only 72% of students with reportable injuries were actually taken to the emergency room or to a doctor<sup>7</sup>.

More than half (56%) of playground-related injuries are fractures and contusions/abrasions<sup>8</sup>. Using the 2015 estimate by the United States Census Bureau, this would equate to about 159 children between the ages of 0-14 who suffer from fractures and contusions in Guam's playgrounds every year. CDC's National Injury Prevention and Control data, from its Web-based Injury Statistics Query and Reporting System (WISQARS), estimates that the average medical and work loss costs of fractures and contusions in children aged 0-14 was about \$15,075 per emergency department visit in 2010<sup>9</sup>. If this amount is applied to the estimated 159 children who get fractures and contusions on Guam, the annual economic burden of emergency room treatments due to playground-related fractures and contusions on island is about \$2,396,925. This cost does not include the other 44% of playground injuries which are caused by lacerations, strains/sprains, concussions, and other means.

Based on the above statistics, there is significant cost attached to injuries sustained in playgrounds, and the implementation of the proposed "*Rules and Regulations Governing Institutional Playgrounds*" will help offset this economic burden as safeguards to protect children from playground hazards are incorporated into the regulations.

### **III. Potential Increase or Decrease to Cost of Living or Price of Good or Service**

The direct economic impact to the industry from the adoption of the “Rules and Regulations Governing Institutional Playgrounds” is estimated to be \$916,073 over a 2-year period, which equals to \$11,309 per each institution, or \$471 per month, and therefore, about \$15 a day. After the initial two-year period the total annual cost would be greatly reduced. The only additional cost in subsequent years would be maintaining all the changes that were initially made to the playground. This cost may actually be less if the institutional facility elects to remove the applicable, elevated equipment from its premises since its presence/installation is not mandatory by any existing, or the proposed, rules and regulations.

It is unlikely the increased cost from implementing the proposed regulations will be passed down to the employees or customers when the expected cost will be less than \$15 per day over two years. Larger institutions may be able to readily absorb the increased cost without hardship. Even the smaller businesses should be able to handle the nominal cost increase since their actual expenses resulting from the adoption of proposed regulations would be proportional to the size of their operation. The greatest cost impact of implementing the proposed regulations is equipment compliance. This does not include costs associated with age separation, signage and/or labeling and surface materials.

A reduction in the cost of living that may result from the adoption of the “Rules and Regulations Governing Institutional Playgrounds” could be attributed to the decrease in the incidence of playground-related injuries caused by improved compliance inspections of regulated facilities. However, the confirmation of such consideration may require more thorough analysis.

### **IV. Direct or Indirect Impact on Employment**

Adverse impact to employment is not expected from the adoption of the “Rules and Regulations Governing Institutional Playgrounds.” The direct impact may occur from businesses needing to hire professionals for landscaping and to install proper equipment or the removal of the elevated playground equipment. Indirect impact to employment could result from institutions either increasing or decreasing hours of operation to make necessary changes.

### **V. Increase or Decrease in Cost of Business**

Child care facilities as well as private and public elementary schools will be the primary entities that will experience increased cost of doing business from the adoption of the “Rules and Regulations Governing Institutional Playgrounds.” The additional expenses they will bear will derive from the procurement of supplies, such as signage, labeling and surface materials. Other expenses include the potential modification, removal, or replacement of existing equipment to come into compliance. The expenses these institutions will incur will decrease after the two-year implementation period to come into compliance.

For those institutional facilities with elevated equipment, its removal will prevent the required installation of the safety surface materials, which will be required in the regulations. Thus, the

elimination (physical removal) of such elevated equipment will be the only expense the facility may incur, specific to this issue, if at all.

The implementation of the proposed regulations may also impact the businesses favorably from the prevention of possible litigation from parents and/or guardians who would want to sue the institution from any injuries sustained at their establishments. CPSC guidelines, which the proposed regulations are based on, have been commonly used in lawsuits relating to safety standards.

## **VI. Adverse or Beneficial Economic Impact**

The adoption and implementation of the “Rules and Regulations Governing Institutional Playgrounds” will certainly have a financial impact on the industry as institutions will be required to implement new practices in their operation and possibly replace one or more pieces of their equipment. While these additional costs may be deemed as an adverse impact to the affected institutions, the overall impact will be beneficial to the economy and the health of the population from the anticipated reduction in the number of playground related injuries on the island and its associated economic burden. The vast majority of playground injuries are both preventable and predictable, and increasing the level of prevention by implementing the proposed regulations will produce savings.

The implementation of the surface material provision of the proposed regulations will help minimize the impact of falls, which are one of the most common causes of playground injuries. If the business elects to remove the elevated equipment, which contributes to such falls, and thus, eliminate the need for the required surface material, the economic impact will be reduced for the business and monetary burden associated with such injuries.

The anticipated reduction of playground-related injuries on Guam, which is expected to occur from the implementation of the proposed “Rules and Regulations Governing Institutional Playgrounds,” should consequently reduce the economic burden these injuries have on the island and its people. These cost benefits should outweigh the actual and imagined costs that the institutions may experience from the adoption of the proposed regulations.

## **REFERENCES**

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