# The Health Situation among Thai Elementary School-Age Children: 2010

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***Background:*** *The school years are a crucial time in the development of the basic life skills necessary for learning in the various and different fields to be encountered in life, as well as for developing and acquiring the knowledge, skills and attitudes necessary to establish and maintain a healthy lifestyle. In general, elementary school-age children rarely present at health service centers but may nevertheless have health problems that affect their ability to learn.*
***Objective:*** *To analyze the health situation among elementary school-age children in Thailand, for the creation of baseline information to serve as an evential basis for making recommendations for adjusting the medical education curriculum and for improving health service provision.*
***Material and Method:*** *To analyze nationwide, hospital data, for the morbidity and mortality of children age 6-12 years in fiscal year 2010.*
***Results:*** *Respiratory infections represented the leading cause for out-patient visits-approximately one-fifth. Respiratory infections were also a significant cause for admissions (21.6%), followed by dengue hemorrhagic fever (14.8%), injury and poisoning (11.3%), disease of digestive system (11.1%) and intestinal infection (10.3%). The leading causes of death were injury and poisoning (22.7%), followed by neoplasm (14.4%), other infection (13.5%) and respiratory infection (12.6%). Overall, about 50-60% of the causes of admissions and of deaths were due to infectious diseases and injury & poisoning.*
***Conclusion:*** *Infectious diseases and injury & poisoning were the major physical illnesses among school-age children. Notwithstanding, there were other health issues-including nutrition, growth & development, mental health & psychosocial problems-that need to be recognized and addressed in order to ensure the health and well-being of school-age children in Thailand.*

***Keywords:*** *School age, Thai, Health situation*

***J Med Assoc Thai 2012; 95 (Suppl. 7): S43-S50***
***Full text. e-Journal:*** *http://jmat.mat.or.th*

Childhood is a period of rapid development and is formative for health, well-being and health behaviors throughout life. The school years represent the key period for developing basic skills necessary for learning in the various and different fields of life, as well as for developing and acquiring the knowledge, skills and attitudes necessary for establishing and maintaining a healthy lifestyle.

Children's health, development and well-being are determined by physical, social, emotional, environmental and economic influences[1]. Families exert the biggest influence on children's growth and development, while schools are also an important part of networks that support children in reaching their potential and support and influence public health outcomes for them.

The importance of reducing the factors that put the health of children at risk and enhancing the factors that protect children is necessary for healthy growth and development of children. Childhood disadvantages adversely affect child health, life circumstances and health in adulthood[2]. By corollary, though, improvements to a child's health can be achieved rapidly by putting the child on course anew, to the right pathways of the development.

In general, however, elementary school-age children rarely present to health service centers even if they have health problems that affect their ability to learn. The range of relevant public health issues includes poverty & health inequalities, overweight & obesity, healthy eating & physical activity, psychosocial & emotional health, behavior & development, tobacco, alcohol & drug use, child protection & injury

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prevention and oral health. Health and education professionals, welfare and support agencies and communities should be recognized and used as advocates for the health and well-being of elementary school-aged children and young people.

**Purpose**

To analyze the health situation of Thailand's school-age population for baseline information in order to provide evidence for revising medical education and curriculum and for improving the health service provision.

**Material and Method**

The data for fiscal year 2010 on morbidity and mortality among children 6-12 years of age from hospitals nationwide were analyzed. Information on the leading causes of out-patient visits, hospital admissions and deaths were reviewed and categorized into groups of diseases according to the ICD-10 codes and ranked by frequency in order to demonstrate the implicit burden of disease.

The reports, studies and research on other health issues (including physical, mental and social well-being) and factors influencing the health of children in this age group were also extensively reviewed.

**Results**

Children between 6-12 years of age account for ~5.8 million (9%) of the total population of Thailand. The data for fiscal year 2010 revealed that 6-12 year-olds accounted for 26,514,924 out-patient visits, 333,234 admissions and 815 in-hospital deaths.

***Out-patient (OPD) visits***

The leading causes of OPD visits in this age group are presented in Table 1. Factors influencing health (47.3%), respiratory infections (20.7%), diseases of the digestive system (9.1%), diseases of the skin and subcutaneous (3.3%) and injury and poisoning (3.3%) were the five leading causes for out-patient visits.

***In-patient (IPD)***

A large majority (93.3%) of admissions among 6-12 year-olds were paid for by the universal coverage health insurance scheme. Males constituted slightly more admissions than females. The male to female ratio for admissions was 1.31 to 1. Most admissions were in the northeastern region (36.1%) followed by the central, southern and northern region (28.7%, 18.6%, and 16.6%, respectively). About one-half (51.8%) of admissions were to primary care hospitals, followed by tertiary care hospitals (23.7%), secondary care hospitals (21.8%) and private hospitals (2.7%).

The leading causes of admissions by primary diagnosis (by group of diseases) are presented in Table 2. Respiratory infections (21.6%), arthropod-borne viral fevers (14.8%), injury and poisoning (11.3%), diseases of the digestive system (11.1%) and intestinal infections (10.3%) were the leading causes of admissions.

Respiratory infections-the leading cause of admissions-were mainly codes J00-J06 Acute upper respiratory infection (32.8%), followed by J09-J18 Influenza and pneumonia (27.6%), J20-J22 Other acute lower respiratory infections (21.7%) and J40-J47 Chronic lower respiratory diseases (17.8%).

Arthropod-borne viral fevers-the second leading cause of admissions-were mainly code A91 Dengue hemorrhagic fever (50.5%) and A90-Dengue fever (45.6%).

Injury and poisoning-the third leading cause of admissions-were mainly codes S00-S9. Injury to the head (20.7%), S50-S59. Injuries to the elbow and forearm (15.2%), injuries to the shoulder and upper arm (10.6%), T51-T65. Toxic effects of substance (9.8%) and T66-T78 Other and unspecified effects of external causes (7.6%).

Diseases of the digestive system-the fourth leading cause of admissions-were mainly codes K20-K31 Diseases of the oesophagus, stomach and duodenum (42.2%), K35-K38 Diseases of appendix (31.1%), or R10-R19 Symptoms and signs involving the digestive system (8.6%).

Intestinal infection-the fifth leading cause of admissions-were mainly code A09 Diarrhea and gastroenteritis of presumed infectious origin (80.2%), A05. Other bacterial foodborne intoxications not elsewhere classified (6.9%) and A08. Viral and other specified infection (4.8%).

The disease-specific diagnosis (as per ICD-10), which were the leading cause for admissions were A09 Diarrhea and gastroenteritis of presumed infectious origin (8.2%), A91 Dengue hemorrhagic fever (7.5%), A90 Dengue fever (6.7%), D56 Thalassemia (5.5%), J20 Acute bronchitis (4.3%), K29 Gastritis and duodenitis (3.4%), B34 Viral infection of unspecified site (3.4%), K35 Acute appendicitis (3.4%), J02 Acute pharyngitis (2.9%) and J18 Pneumonia organism unspecified (2.7%).

The average length of stay was 3.91 days per

**Table 1.** Number of OPD visits by primary diagnosis among 6-12 year-olds

| Primary diagnosis (by group of diseases) | Visit (n) | % |
|---|---|---|
| Factors influencing health* | 12,551,331 | 47.3 |
| Respiratory infections | 5,491,679 | 20.7 |
| Disease of the digestive system | 2,413,857 | 9.1 |
| Diseases of the skin and subcutaneous | 873,084 | 3.3 |
| Injury and poisoning | 865,046 | 3.3 |
| External causes of morbidity & mortality | 726,288 | 2.7 |
| Other infectious | 467,987 | 1.8 |
| Diseases of the circulatory | 400,880 | 1.5 |
| Diseases of the eye | 274,711 | 1.0 |
| Intestinal infection | 255,990 | 1.0 |
| Diseases of the musculoskeletal | 176,804 | 0.7 |
| Diseases of the ear | 164,848 | 0.6 |
| Diseases of the respiratory system | 158,143 | 0.6 |
| Mental and behavioral diseases | 127,378 | 0.5 |
| Diseases of the blood | 122,458 | 0.5 |
| Diseases of genitourinary system | 102,069 | 0.4 |
| Diseases of the nervous system | 97,681 | 0.4 |
| Arthropod-borne viral fevers | 73,186 | 0.3 |
| Endocrine nutritional and metabolic diseases | 61,584 | 0.2 |
| Neoplasms | 46,725 | 0.2 |
| Congenital malformations | 41,248 | 0.2 |
| Pregnancy | 3,070 | < 0.1 |
| Certain conditions originating in the perinatal period | 2,730 | < 0.1 |
| Others | 1,016,147 | 3.8 |
| Total | 26,514,924 | 100.0 |

* ICD-10 code Z00-Z99; Factors influencing health status and contact with health service

admission. Mental and behavioral disease, neoplasm, musculoskeletal disease, congenital malformation and endocrine nutrition and metabolic diseases were the primary diagnoses given for the longest stays (10.03, 7.59, 5.58, 5.56 and 5.12 days, respectively).

The average hospital charge was 10,402.78 baht per admission. Congenital malformation, neoplasm, circulatory disease, musculoskeletal disease and disease of the nervous system were the diagnoses given for the greatest charges per admission (42,849, 30,198, 15,396, 14,733 and 14,204 baht, respectively).

### *Hospital deaths*

The ten leading causes of deaths were 1) injury and poisoning (22.7%) 2) neoplasm (14.4%) 3) other infections (13.5%) 4) respiratory infections (12.6%) 5) diseases of the nervous system (6.9%) 6) arthropod-borne viral fevers (6.0%) 7) respiratory system diseases (5.8%) 8) circulatory diseases (5.4%) 9) congenital malformations (3.4%) and 10) digestive system diseases (2.3%).

Injury and poisoning-the leading cause of death-were mainly codes T66-T78. Other and unspecified effects of external causes (40.5%), S00-S9 Injuries to the head (39.4%) and S30-S39. Injuries to the abdomen, lower back, lumbar spine and pelvis (9.7%).

The disease-specific diagnoses (ICD-10), which were the leading causes of death as presented in Table 3, included 1) T75 Effects of other external causes (8.7%), 2) A41 other septicemia (8.3%), 3) S06 intracranial injury (8.2%), 4) J18 Pneumonia organism unspecified (7.7%), 5) A91 Dengue hemorrhagic fever (5.3%), 6) C91 Lymphoid leukemia (4.2%), 7) J15 bacterial pneumonia not elsewhere classified (3.3%), 8) J69 pneumonitis due to solids and liquids (2.2%), 9) B20 Human immunodeficiency viral disease (2.0%), 10) C71 Malig-nant neoplasm of brain (2.0%) and 11) S36 Injury of intra-abdominal organs (2.0%).

## Discussion

Children represent the future and ensuring their healthy growth and development should be a prime concern for all societies. Children are vulnerable

**Table 2.** Number of admissions and deaths by primary diagnosis (group of diseases) in 6-12 year-olds

| Primary diagnosis (Group of diseases) | Admissions (n) | % | Deaths (n) | % |
|---|---|---|---|---|
| Respiratory infections | 71,684 | 21.6 | 103 | 12.6 |
| Arthropod-borne viral fevers | 49,104 | 14.8 | 49 | 6.0 |
| Injuries and poisonings | 37,484 | 11.3 | 185 | 22.7 |
| Diseases of the digestive system | 36,888 | 11.1 | 19 | 2.3 |
| Intestinal infections | 34,170 | 10.3 | 5 | 0.6 |
| Diseases of blood | 22,573 | 6.8 | 10 | 1.2 |
| Other infections | 18,775 | 5.7 | 110 | 13.5 |
| Diseases of the genitourinary system | 9,658 | 2.9 | 15 | 1.8 |
| Others | 9,625 | 2.9 | 10 | 1.2 |
| Diseases of skin and subcutaneous | 8,773 | 2.6 | 1 | 0.1 |
| Neoplasms | 6,534 | 2.0 | 117 | 14.4 |
| Diseases of the nervous system | 5,537 | 1.7 | 56 | 6.9 |
| Mental and behavioral diseases | 3,874 | 1.2 | 1 | 0.1 |
| Congenital malformations | 3,621 | 1.1 | 28 | 3.4 |
| Diseases of musculoskeletal | 3,390 | 1.0 | 8 | 1.0 |
| Diseases of respiratory system | 2,864 | 0.9 | 47 | 5.8 |
| Diseases of circulatory | 2,195 | 0.7 | 44 | 5.4 |
| Diseases of the eye | 1,790 | 0.5 | 1 | 0.1 |
| Factors influencing health | 1,406 | 0.4 | 1 | 0.1 |
| Endocrine nutrition and metabolic diseases | 1,325 | 0.4 | 5 | 0.6 |
| Diseases of the ear | 925 | 0.3 | 0 | < 0.1 |
| Pregnancy | 36 | < 0.1 | 0 | < 0.1 |
| Certain conditions originating in the perinatal period | 3 | < 0.1 | 0 | < 0.1 |
| Total | 332,234 | | 815 | |

to malnutrition, infectious and non-infectious diseases, many of which can be effectively prevented or treated. Although, school-age children rarely present to health service centers, the authors data from hospitals nationwide in 2010 showed that there were many illness that caused morbidity and mortality.

There were ~26.5 millions OPD visits in 2010 and respiratory infections were the leading cause for about one-fifth of the visits. To compare, there were 332,234 IPD admissions in 2010 and again respiratory infections were the leading cause (21.6%), followed by dengue hemorrhagic fever (14.8%), injury and poisoning (11.3%), diseases of the digestive system (11.1%) and intestinal infections (10.3%). The leading causes of death were injury and poisoning (22.7%), followed by neoplasm (14.4%), other infections (13.5%) and respiratory infections (12.6%). About 50-60% of these leading causes of admissions and causes of death were from infectious diseases, injury or poisoning. The authors' findings, pattern of diseases that caused morbidity and mortality, were similar to the previous report of 2007-2008[3].

The authors nationwide hospital data demonstrated the magnitude of physical illness affecting elementary school-age children health; however, there was a lack of data on other important health issues that influence the health of children-including allergic disease, nutrition, growth and development, mental health, schooling/learning problems, vision and hearing deficits, psychosocial contexts and oral health.

***Allergic disease***

Allergic disease is one of the most common chronic diseases in children and also has impact on children's health-related quality of life (HRQL)[4]. Surveys on allergic diseases among school-age children in 1995 and 2002-2003 showed an increase in both prevalence and incidence[3]. Allergic rhinitis was most common, followed by atopic dermatitis, allergic conjunctivitis, asthma and food allergy. The prevalence of allergic rhino conjunctivitis had increased from 15.5% to 21% and that of atopic dermatitis from 8.2% to 9.6%, while that of asthma had slightly decreased from 13.1% to 11.6%.

***Nutrition***

Malnutrition and obesity persist as a major problem among Thai children. Children who do not reach their optimum height or consistently experience bouts of weight loss during childhood are affected in

**Table 3.** Number of deaths by disease-specific diagnoses

| | Deaths (n) | % |
|---|---|---|
| T75-Effects of other external causes | 71 | 8.7 |
| A41-Other septicemia | 68 | 8.3 |
| S06-Intracranial injury | 67 | 8.2 |
| J18-Pneumonia organism unspecified | 63 | 7.7 |
| A91-Dengue hemorrhagic fever | 43 | 5.3 |
| C91-Lymphoid leukemia | 34 | 4.2 |
| J15-Bacterial pneumonia not elsewhere classified | 27 | 3.3 |
| J69-Pneumonitis due to solids and liquids | 18 | 2.2 |
| B20-Human immunodeficiency viral disease | 16 | 2.0 |
| C71-Malignant neoplasm of brain | 16 | 2.0 |
| S36-Injury of intra-abdominal organs | 16 | 2.0 |
| I46-Cardiac arrest | 14 | 1.7 |
| C92-Myeloid leukemia | 13 | 1.6 |
| C74-Malignant neoplasm of adrenal gland | 12 | 1.5 |
| J96-Respiratory failure not elsewhere specified | 12 | 1.5 |
| G41-Status epilepticus | 11 | 1.3 |
| J80-Adult respiratory distress syndrome | 10 | 1.2 |
| Q20-congenital malformation of cardiac chambers and connect | 10 | 1.2 |
| G04-Encephalitis, myelitis, and encephalomyelitis | 8 | 1.0 |
| I61-Intracranial haemorrhage | 8 | 1.0 |

the long term in numerous ways. They do not reach their optimum size as adults (and so may have less physical capacity for work), their brains are affected (resulting in lower IQs) and they are at greater risk of infection (which kills many children during their early years)[5]. Childhood obesity has both immediate and long-term effects on health and well-being. Immediate health effects of childhood obesity are more likely to have risk factors for cardiovascular disease, prediabetes and greater risk for bone and joint problems, sleep apnea and social and psychological problems. Long-term health effects of obesity include children and adolescents who are obese are likely to be obese as adults and are therefore more at risk for adult health problems such as heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis[6].

Data on the nutritional situation of elementary school-age children shows the prevalence of overweight and obesity increasing while malnutrition remained unchanged since 2000. A survey between 2008-2009 revealed that 3.5% of school-age children in Thailand were short for their age and 3.7% were underweight; while more 9.7% were overweight and obese[7]. Children in urban areas had more obesity than suburban and rural areas. Of concern, the increasing rate of obesity among children was almost double the rate of malnutrition.

Both iodine deficiency and iron deficiency anemia present a major risk for cognitive impairment in children. The 5th Nutritional Survey between 2003-2004 reported that 7% of school-age children had goiter (an indicator of iodine deficiency) and 20.5% had anemia (~4% due to iron deficiency anemia)[3].

***Growth and development***

Intelligence quotient (IQ) and emotional quotient (EQ) reflect the growth and development of children in this age group and are also major factors in the development of knowledge and attitudes necessary for establishing and maintaining a healthy lifestyle.

Intelligence (as measured by an IQ-type test) in childhood predicts substantial difference in adult morbidity and mortality, including deaths from cancers and cardiovascular diseases[8]. Emotional intelligence (EI) is also more strongly associated with health[9].

A survey of IQ in Thai children between 6-15 years of age (90% were elementary school-age)-using standard progressive matrices, conducted by the Department of Mental Health between Dec 2009-Jan 2010-indicated that the average IQ of Thai children was 98.59 (in the average range of IQ score, 90-109), which was a little higher than the 91 from a study in 2008-2009[10]. However, 28.4% of these children had an IQ below the average range and 6.5% had an IQ < 70, indicating intellectual disability.

A 2007 study of EQ of 6-11 year-olds by

parents and teachers revealed that EQ scores were in the normal range[3].

***Mental health***

There is very little information on mental health problems among Thai children. A study in 2002 reported that the prevalence of psychiatric problems among 4th graders was 37.6%. Over-anxiety disorder was the most common causes of psychiatric problems among school-age children (10.8%), followed by phobia disorder (9.7%), depressive disorder (7.1%), conduct disorder (5.5%), attention deficit hyperactivity disorder (5.1%) and separation anxiety disorder (5%)[11].

In the past few years, Thailand has faced several violent events and disasters (both natural and human-induced). Data about children in disaster is sparse, but problems on this issue will most certainly have increased because schools have been destroyed or closed and families displaced. It is important to recognize these realities and to learn how to help children in need in emergency situations: this should be included in the medical curriculum

***Schooling/learning disabilities***

At the broadest level, literacy acquisition increases the likelihood of longer engagement in formal education, affecting current and future health[12]. There is limited data on schooling/learning problems among Thai children. A survey of school teachers suggested that 17-35% of children had schooling/learning difficulties[3]. Learning disorders and attention deficit hyperactivity disorder were the most commonly cited of schooling/learning problems, however, the prevalence of neither were not specified. There has been no national survey of these problems. It has been reported that 2.4-8% of school-age children had attention deficit hyperactivity disorder and 6-9.95% had a learning disorder[3].

***Vision and hearing disabilities***

Vision and hearing problems are an illness affecting the learning potential of children. There is very little data on vision and hearing problems in Thailand. Studies on vision problems in children reported that 6-8% of school-age children had problem[3]. A study on hearing impairment in 6-15 year-olds in 2000 showed that 3.9% of rural and 6.1% of Bangkok children had a hearing impairment[3].

***Psychosocial issues***

Family is very important for growth and development of the child and also influences his/her health. A report on child-rearing showed that most primary caregivers had a primary school education level[3]. Of concern, a respective 50% and 20% of elementary school-age children reported verbal and physical abuse from their parents[3]. Fortunately, most caregivers accepted that teachers and the school bore the primary responsibility for their child's formal education.

There is very limited information on risk-taking behavior among school-age children. A report showed 0.9% of school-age children smoked and 5.0% drank[7]. One-third of school age children reported not wearing a helmet when riding a motorcycle and one-fifth reported not using a safety belt when in a car[3].

In today's society, electronic media are thoroughly integrated into the fabric of life, with television, movies, videos, music, video games and computers, central to both work and play. While these media outlets can provide education and entertainment to children, many researches are concerned with the negative impact electronic media is having on children. Media exposure affects the neurodevelopment, nutrition and health and academic achievements of the child[13].

Data on these issues is, however, limited. There was report showed 27.8% and 58% of children age 6-14 years spending more than 3 hours/day watching television on weekday and weekend, respectively[7]. 9.2% of children 6-14 years played computer game more than 1 hour/day[7].

***Oral health***

Oral health affects general health by causing considerable pain and suffering and by changing what people eat, their speech and their quality of life and well-being. Tooth decay is one of the most common of oral health problems. The 6th Oral Health Situation Survey showed that 56.9% of 12 year-olds had permanent tooth decay[14]. The average tooth decay and need to be treated was 1.55 teeth/person. Approximately 6.6% of Bangkok students were missing class due to toothache and the average of missed school days was 4.7 days/year.

**Conclusion**

Infectious diseases, injury and poisoning were the major physical illness among elementary school-age children. There were, however, other health issues such as nutrition, growth and development, mental health and psychosocial problems that should be

recognized and advocated in order to achieve the good health and well-being of elementary school-age children.

**Suggestions**

Surveillance of the health situation among children needs to be done on an ongoing basis. The range of diseases from hospitals nationwide may provide a tentative prioritization of health problems for health policy, but they do not likely reflect the real health situation of children. Many health and health-related issues-such as growth & development, behavioral problems, learning disabilities, cognitive deficits, risk-taking behaviors, family violence and other psychosocial issues-do not usually present at health service centers. Health information specifically about school-age children is scarce; thus, health agencies responsible for the health and welfare of children need to cooperate on research and policy development, share information and conduct periodic national surveys on the health and health-related situation of children.

The present medical curriculum covers all health problems in children, especially physical illness. There should, however, be more content and experiences on issues related to child behavioral health, growth & development, mental & behavioral problems, and psychosocial issues.

About 90% of school-age children spend most of their time at school. Schools are an catalytic environment for developing the knowledge, skills and attitudes necessary for establishing and maintaining a healthy psycho-social frame of reference. The school setting is also a critical link in health promotion, illness prevention, early detection of conditions and early intervention provided by school nursing, medical and oral health services. Both the content and experiences in school health (including health promotion in the school and the community, child health checks (surveillance and screening), integration of other services and programs) should be included in the medical training curriculum, so that physicians learn to work with educational and other health professionals in the community.

**Acknowledgement**

The authors wish to thank Mr. Bryan Roderick Hamman and Mrs. Janice Loewen-Hamman for assistance with the English-language presentation of the manuscript.

**Potential conflicts of interest**

None.

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## *สุขภาวะของเด็กไทยวัยเรียน พ.ศ. 2553*

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***ภูมิหลัง:*** *วัยเรียนเป็นวัยที่สำคัญในการพัฒนาทักษะพื้นฐานที่มีส่วนจำเป็นในการเรียนรู้ในด้านต่างๆ ไม่ว่าจะเป็นด้านความรู้ ทักษะต่างๆและทัศนคติในการดำรงชีวิตอย่างมีสุขภาพที่ดี โดยทั่วเด็กวัยเรียนมักจะไม่ค่อยมีการเจ็บป่วยที่ต้องมาโรงพยาบาล แต่อย่างไรก็ตามยังมีปัญหาด้านสุขภาพหลายอย่างที่จะส่งผลกระทบต่อเด็กและการเรียนรู้*

***วัตถุประสงค์:*** *เพื่อวิเคราะห์สถานการณ์ปัญหาสุขภาพเด็กวัยเรียน เพื่อเป็นข้อมูลพื้นฐาน ประกอบการปรับปรุงการการเรียนการสอนในโรงเรียนแพทย์ และการให้บริการสุขภาพให้สอดคล้องกับสถานการณ์ปัจจุบันยิ่งขึ้น*

***วัสดุและวิธีการ:*** *ข้อมูลเรื่องการเจ็บป่วยและการตายจากโรงพยาบาลทั่วประเทศ ของเด็กอายุ 6-12 ปี ในปีงบประมาณปี พ.ศ. 2553 ได้ถูกนำมาวิเคราะห์*

***ผลการศึกษา:*** *การติดเชื้อระบบทางเดินหายใจเป็นสาเหตุสำคัญที่มาใช้บริการที่แผนกผู้ป่วยนอก คิดเป็น 1 ใน 5 ของผู้ป่วยนอกเด็กวัยนี้ การติดเชื้อระบบทางเดินหายใจยังเป็นสาเหตุนำของผู้ป่วยที่รับไว้ในโรงพยาบาล (ร้อยละ 21.6), ตามมาด้วยไข้เลือดออก (ร้อยละ 14.8), การบาดเจ็บและได้รับสารพิษ (ร้อยละ 11.3), โรคระบบทางเดินอาหาร (ร้อยละ 11.1), และการติดเชื้อของระบบทางเดินอาหาร (ร้อยละ 10.3). สาเหตุของการเสียชีวิตได้แก่ การบาดเจ็บและได้รับสารพิษ (ร้อยละ 22.7), มะเร็ง (ร้อยละ 14.4), การติดเชื้ออื่นๆ (ร้อยละ 13.5) และการติดเชื้อระบบทางเดินหายใจ (ร้อยละ 12.6) โดยรวมประมาณ ร้อยละ 50-60 ของสาเหตุของการรับไว้ในโรงพยาบาลและสาเหตุของเสียชีวิตเกิดจากโรคติดเชื้อและการบาดเจ็บและได้รับสารพิษ*

***สรุป:*** *ปัญหาโรคติดเชื้อและการบาดเจ็บและได้รับสารพิษเป็นสาเหตุสำคัญของการเจ็บป่วยในเด็กวัยเรียน อย่างไรก็ตามยังมีปัญหาสุขภาพอื่นๆได้แก่ ภาวะโภชนาการ การเจริญเติบโตและพัฒนาการ สุขภาพจิตและประเด็นด้านจิตสังคมที่จำเป็นต้องตระหนักและให้ความสำคัญเพื่อให้เด็กวัยนี้มีสุขภาพที่ดี*