

Community Healthcare Needs Assessment For School Aged Children

In the

Mamaroneck Union Free School District

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Executive Summary:

Based on the request of the Superintendent of Schools, Dr. Robert Shaps, and the members of the Board of Education an evaluation has been conducted to define the community based healthcare needs of school aged children between the ages of four and ten years. This activity is being undertaken in light of proposals made by agencies outside the school district to sponsor and support the development a 'School Based Healthcare Program' above and beyond the current, limited healthcare services provided within the School District. The definition and scope of these programs have been promoted by Federal entities, such as the Department of Education and Centers for Disease Control as purporting to have educational benefits while enhancing the health of the student population. As such an independent evaluation has been requested to establish a baseline of what the current healthcare experience and utilization characteristics are for this age group specifically in the Mamaroneck and Larchmont area.

While no single data repository currently exists for all levels of healthcare activity, the New York State Department of Health data repository (SPARCS) is a valuable resource from which Community Needs Assessments are actively being evaluated for a variety of purposes. This data resource reflects the comprehensive hospital based activity of both inpatient and outpatient services with sufficient specificity to define the patient's residential origin and clinical needs or activities as well as the provider of such services. In dealing with the scope and depth healthcare related documentation. The research methodology used here accounted for the privacy and confidentiality requirements of the Health Insurance Portability and Accountability Act (HIPAA) of 1996 and subsequent amendments by limiting the data elements reported to a number greater than ten; so that individuals can not be identified. To accomplish these standard requirements a period of three years (10/2013-9/2015) were evaluated from the New York State SPARCS data repository in which hospital based activities for the combined zip codes (10538 and 10543) were used to represent the School District with such reporting to include emergency room visits (without admission), inpatient hospitalization (In. ER source), hospital based ambulatory surgery and outpatient clinic visits, further delineated by the type of clinical service represented.

Additional information was drawn from the Westchester County Department of Health (DOH) annual reports in which population estimates of age groups, racial and ethnic characteristics and other variables are reported. Based on the year 2000 and 2010 census and American Communities Survey updates, the 4-10 year age group is estimated to represent 4070 children for the Mamaroneck and Larchmont area. With a total population just under 37,000 people this represents 11% of the population with a growth of approximately 70 children over the past decade. However while the Westchester DOH attempts to monitor various environmental and public health concerns and conditions, these are done at the County wide level. Excluded from

this evaluation are the private practice office activities of physicians throughout the surrounding communities as an all-claims or all-payer data resource does not currently exist. However there is sufficient information from Public Health Agency reporting and State DOH data resources to estimate the number of children of this age group, impacted by chronic and other healthcare related conditions which may ultimately be impacted by a School Based Healthcare Program.

To this end we have evaluated more the 3300 hospital based visits over a three year period representing the activity of over 1300 individual children specifically from the Mamaroneck and Larchmont district. This represents approximately one third of the estimated children’s population having some form of healthcare related event or visit. The table that follows summarizes the classification of conditions treated over the three year time period and the institutional venue employed to provide services irrespective of which institution from NY State was utilized.

	Product Category	Ambulatory Surgery	Emergency Room	OutPatient Clinic	InPatient	Total	Prevalence per Yr.
1	Infectious Disease		48	139	NR	190	1.6%
2	Oncology	13	NR	44	NR	66	0.5%
3	Endocrine	NR	NR	163	NR	183	1.5%
4	Hematology		NR	NR	NR	15	0.1%
5	Neurology	NR	24	29	25	80	0.7%
6	Ophthalmology	12	NR	39		58	0.5%
7	ENT	42	46	100	NR	193	1.6%
8	Cardio-Vascular	NR	NR	21	NR	35	0.3%
9	Respiratory	64	149	193	16	422	3.5%
10	Gastro-Intestinal	48	87	51	20	206	1.7%
11	Nephrology			NR	NR	NR	NR
12	Urology	NR	20	16	NR	48	0.4%
13	OB-GYN		NR	NR		NR	NR
14	Dermatology	NR	25	28	NR	68	0.6%
15	Orthopedics	NR	19	48	NR	73	0.6%
16	Neonatology	14		NR	NR	25	0.2%
17	Trauma	13	391	44	18	466	3.8%
18	Internal Medicine	17	154	388	NR	565	4.6%
19/5	Behavioral/Mental Health		NR	558	NR	511	4.2%
	Total	247	996	1876	151	3270	26.8%
		7.4%	30.0%	56.5%	4.6%		

Note: NR represents Not Reportable data element

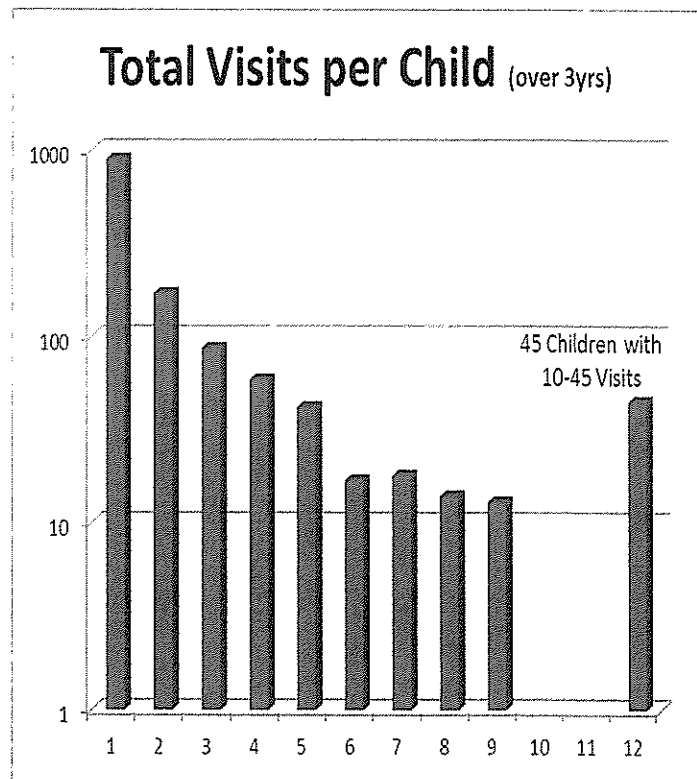
As illustrated in Table 1 more than half of the visits or episodes are associated with hospital based clinics while another thirty percent are Emergency Room visits (without inpatient admission). The remaining twelve percent of the activity is related to the more intensive

inpatient and ambulatory surgery services. Additionally the most significant clinical services are associated with Trauma, Internal Medicine (inc. 70 visits food and other allergies), Respiratory (inc. 104 visits for Asthma), Endocrine (inc. 77 visits for Diabetes) and Behavioral/Mental Health (inc. 160 visits for Attention-deficit, conduct, and disruptive behavior disorders). In order to be consistent with the research of the CDC the volume of Epilepsy was also reported to be 37 visits while there were zero Hypertension cases reported for this period. These rates, or what is referred to as prevalence measures, are consistent and a little less than those reported in researched published by the CDC based on large national samplings across the United States.

A more thorough outline of total activity for school age children by Diagnostic Category in the Mamaroneck and Larchmont District will be found in the Appendix attached to this document although the venue of activity is expunged in compliance with reporting limitations. There are 134 Diagnostic categories represented in this data set although the past research has primarily focused on six to twelve preventable conditions which are highlighted in the Appendix. As a reminder, any numbers reported must be greater the ten in order to comply with privacy reporting requirements and have otherwise been expunged from the reporting.

The volume of healthcare utilization, when taken in the context of a population of a little over 4000 children is potentially significant within the context of preventable health conditions that may be supported by a School Based Healthcare Program. Clearly a third of the student population (1364 individuals) are impacted by some episode or visit to a hospital service, however 72% of the visits involve 466 individuals (34% of population) in which there are two or more episodes over a three year observation window. This is slightly more than 10% of the aggregate student population and is similar in distribution for the ethnic and racial distribution of the community.

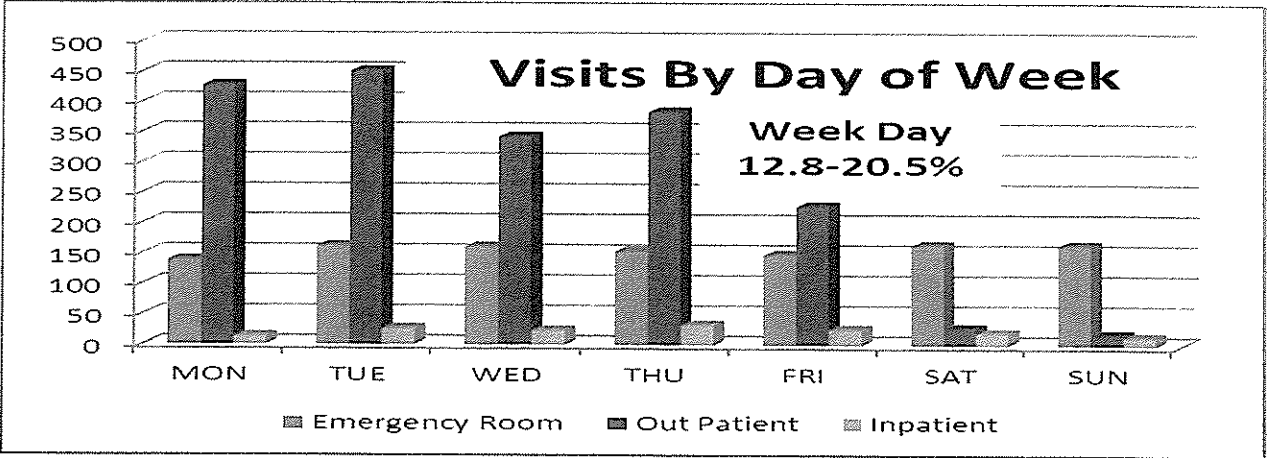
We have noted in Table 1 above, the prevalence metrics which are slightly lower than national comparisons which may be attributable to socio-economic conditions across the community and access to primary care services in the form of private physician offices. However there are still hundreds of visits specifically associated with Asthma, Diabetes, Epilepsy, Food and other allergies that are the basis for focusing on preventable conditions. Additionally we have considered the importance of



behavioral health and mental health conditions which also represent a significant volume of activity.

Chart 1 indicates the frequency of individuals interacting with institutional service providers (excluding private physicians). It should be noted that the extreme frequencies above ten visits are attributed to behavioral/mental health conditions including: categories #652: Attention-deficit, conduct, and disruptive behavior disorders (163 visits); #655 Disorders usually diagnosed in infancy, childhood, or adolescence (141 visits); #650 Adjustment Disorder (108 visits); and Developmental and Mood Disorders (92 visits). As previously indicated these are consistent with larger scale research publications.

While the classification methodology employed in this research has 134 different categories or conditions represented, there are relatively few additional clinical episodes that would be considered preventable as highlighted by the published research of the Centers for Disease Control (CDC) and other academic resources. However the translation to classroom or seat time is supported by publish research in not only attendance but in performance levels while in the classroom. In this respect the methodology also took into consideration the day of week in which the majority of medical interventions are associated versus weekend activity in which school attendance would not be of interest. As demonstrated by Chart 2 that follows, Emergency Room activity is relatively consistent throughout the week. However the Outpatient volumes are associated with the normal weekday periods and represents more than 85% of the aggregated activity. In many respects this would be expected and is confirmed by the research found here. We would also hypothesize that private physician activity would follow a similar pattern of activity in which scheduled or urgent visits would be concentrated during normal working hours and days; conflicting with classroom activities. Chart 2 demonstrates the day of week distribution for Emergent/Urgent care, Clinic Visits and Inpatient Admissions.



In conclusion a baseline of current health related activity has been established for grade school students in Mamaroneck and Larchmont. It will be possible to monitor or evaluate these metrics in the future for potential trends or patterns that are effectuated by program changes introduced by the District. It is also possible to make broader comparisons to the healthcare related activity of with other student populations across the entire Westchester County region or individual communities. Similar results would be expected from Districts that do not have School Based Healthcare Programs, although there may be some differences in prevalence measures based on racial, ethnic and socio-economic characteristics. However the initiatives that have been demonstrated by other Districts in the surrounding regions of New York State and Westchester County suggest that Asthma, Diabetes, Epilepsy, Food Allergies and some other conditions may be positively impacted and this research establishes a baseline from which future assessments maybe measured.

Respectfully

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Appendix

Combined In-Patient & Out-Patient Visits by Diagnostic Category

Product Category	Product_Cat_Name	CCS_DIAGNOSIS_Cat	CCS_Total	Category Total
1	Infec Dis	3 Bacterial infection; unspecified site	NR	
1	Infec Dis	4 Mycoses	NR	
1	Infec Dis	7 Viral infection	58	
1	Infec Dis	8 Other infections; including parasitic	NR	
1	Infec Dis	10 Immunizations and screening for infectious disease	116	190
2	Oncology	21 Cancer of bone and connective tissue	NR	
2	Oncology	32 Cancer of bladder	NR	
2	Oncology	38 Non-Hodgkin`s lymphoma	NR	
2	Oncology	39 Leukemias	19	
2	Oncology	44 Neoplasms of unspecified nature or uncertain behavior	NR	
2	Oncology	45 Maintenance chemotherapy; radiotherapy	20	
2	Oncology	47 Other and unspecified benign neoplasm	18	66
3	Endocrine	48 Thyroid disorders	NR	
3	Endocrine	49 Diabetes mellitus without complication	NR	
3	Endocrine	50 Diabetes mellitus with complications	NR	
3	Endocrine	51 Other endocrine disorders	68	
3	Endocrine	52 Nutritional deficiencies	NR	
3	Endocrine	53 Disorders of lipid metabolism	NR	
3	Endocrine	55 Fluid and electrolyte disorders	13	
3	Endocrine	58 Other nutritional; endocrine; and metabolic disorders	83	183
4	Hematology	59 Deficiency and other anemia	NR	
4	Hematology	62 Coagulation and hemorrhagic disorders	NR	
4	Hematology	63 Diseases of white blood cells	NR	15
5	Neurology	76 Meningitis (except that caused by tuberculosis or sexually transmitted disease)	NR	
5	Neurology	77 Encephalitis (except that caused by tuberculosis or sexually transmitted disease)	NR	
5	Neurology	81 Other hereditary and degenerative nervous system conditions	NR	
5	Neurology	82 Paralysis	NR	
5	Neurology	83 Epilepsy; convulsions	51	
5	Neurology	84 Headache; including migraine	17	80
6	Ophthalmology	89 Blindness and vision defects	NR	
6	Ophthalmology	90 Inflammation; infection of eye (except	18	

that caused by tuberculosis or sexually transmitted disease)

7	Ophthalmology	91 Other eye disorders	34	166
7	ENT	92 Otitis media and related conditions	99	
7	ENT	93 Conditions associated with dizziness or vertigo	NR	
7	ENT	94 Other ear and sense organ disorders	42	
7	ENT	95 Other nervous system disorders	12	
8	ENT	96 Heart valve disorders	34	193
8	Cardio-Vascular	102 Nonspecific chest pain	NR	
8	Cardio-Vascular	105 Conduction disorders	NR	
8	Cardio-Vascular	106 Cardiac dysrhythmias	13	
8	Cardio-Vascular	113 Late effects of cerebrovascular disease	NR	
8	Cardio-Vascular	116 Aortic and peripheral arterial embolism or thrombosis	NR	
8	Cardio-Vascular	117 Other circulatory disease	11	
9	Cardio-Vascular	121 Other diseases of veins and lymphatics	NR	35
9	Respiratory	122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	16	
9	Respiratory	123 Influenza	NR	
9	Respiratory	124 Acute and chronic tonsillitis	68	
9	Respiratory	125 Acute bronchitis	NR	
9	Respiratory	126 Other upper respiratory infections	139	
9	Respiratory	127 Chronic obstructive pulmonary disease and bronchiectasis	NR	
9	Respiratory	128 Asthma	104	
9	Respiratory	131 Respiratory failure; insufficiency; arrest (adult)	NR	
9	Respiratory	133 Other lower respiratory disease	39	
10	Respiratory	134 Other upper respiratory disease	42	422
10	Gastro-Intestinal	135 Intestinal infection	18	
10	Gastro-Intestinal	136 Disorders of teeth and jaw	23	
10	Gastro-Intestinal	137 Diseases of mouth; excluding dental	NR	
10	Gastro-Intestinal	138 Esophageal disorders	13	
10	Gastro-Intestinal	139 Gastroduodenal ulcer (except hemorrhage)	NR	
10	Gastro-Intestinal	140 Gastritis and duodenitis	18	
10	Gastro-Intestinal	141 Other disorders of stomach and duodenum	NR	
10	Gastro-Intestinal	142 Appendicitis and other appendiceal conditions	12	
10	Gastro-Intestinal	143 Abdominal hernia	12	

10	Gastro-Intestinal	144 Regional enteritis and ulcerative colitis	NR	
10	Gastro-Intestinal	145 Intestinal obstruction without hernia	NR	
10	Gastro-Intestinal	147 Anal and rectal conditions	NR	
10	Gastro-Intestinal	148 Peritonitis and intestinal abscess	NR	
10	Gastro-Intestinal	149 Biliary tract disease	NR	
10	Gastro-Intestinal	154 Noninfectious gastroenteritis	47	
11	Gastro-Intestinal	155 Other gastrointestinal disorders	42	206
12	Nephrology	156 Nephritis; nephrosis; renal sclerosis	NR	
12	Urology	159 Urinary tract infections	15	
12	Urology	161 Other diseases of kidney and ureters	NR	
12	Urology	162 Other diseases of bladder and urethra	NR	
12	Urology	163 Genitourinary symptoms and ill-defined conditions	NR	
12	Urology	165 Inflammatory conditions of male genital organs	NR	
13	Urology	166 Other male genital disorders	11	50
13	OB-GYN	167 Nonmalignant breast conditions	NR	
13	OB-GYN	168 Inflammatory diseases of female pelvic organs	NR	
14	OB-GYN	175 Other female genital disorders	NR	NR
14	Dermatology	197 Skin and subcutaneous tissue infections	28	
14	Dermatology	198 Other inflammatory condition of skin	NR	
15	Dermatology	200 Other skin disorders	32	68
15	Orthopedics	201 Infective arthritis and osteomyelitis (except that caused by tuberculosis or sexually transmitted disease)	NR	
15	Orthopedics	204 Other non-traumatic joint disorders	26	
15	Orthopedics	205 Spondylosis; intervertebral disc disorders; other back problems	NR	
15	Orthopedics	208 Acquired foot deformities	NR	
15	Orthopedics	209 Other acquired deformities	NR	
15	Orthopedics	210 Systemic lupus erythematosus and connective tissue disorders	NR	
15	Orthopedics	211 Other connective tissue disease	13	
16	Orthopedics	212 Other bone disease and musculoskeletal deformities	12	73
16	Neonatology	213 Cardiac and circulatory congenital anomalies	NR	
16	Neonatology	214 Digestive congenital anomalies	NR	
16	Neonatology	215 Genitourinary congenital anomalies	NR	
17	Neonatology	217 Other congenital anomalies	17	25
17	Trauma	225 Joint disorders and dislocations; trauma-related	NR	
17	Trauma	228 Skull and face fractures	NR	
17	Trauma	229 Fracture of upper limb	77	

17	Trauma	230 Fracture of lower limb	22	
17	Trauma	231 Other fractures	NR	
17	Trauma	232 Sprains and strains	33	
17	Trauma	233 Intracranial injury	27	
17	Trauma	234 Crushing injury or internal injury	NR	
17	Trauma	235 Open wounds of head; neck; and trunk	95	
17	Trauma	236 Open wounds of extremities	31	
17	Trauma	237 Complication of device; implant or graft	NR	
		238 Complications of surgical procedures or medical care	NR	
17	Trauma	239 Superficial injury; contusion	68	
17	Trauma	240 Burns	NR	
		242 Poisoning by other medications and drugs	NR	
17	Trauma	243 Poisoning by non-medicinal substances	NR	
		244 Other injuries and conditions due to external causes	79	466
18	Trauma	245 Syncope	NR	
18	Int Med	246 Fever of unknown origin	24	
18	Int Med	247 Lymphadenitis	13	
18	Int Med	250 Nausea and vomiting	22	
18	Int Med	251 Abdominal pain	81	
18	Int Med	252 Malaise and fatigue	NR	
18	Int Med	253 Allergic reactions	70	
		254 Rehabilitation care; fitting of prostheses; and adjustment of devices	NR	
18	Int Med	255 Administrative/social admission	267	
18	Int Med	256 Medical examination/evaluation	NR	
18	Int Med	257 Other aftercare	27	
		258 Other screening for suspected conditions (not mental disorders or infectious disease)	15	
18	Int Med	259 Residual codes; unclassified	29	565
19	Psychiatry	651 Anxiety disorders	52	
		652 Attention-deficit, conduct, and disruptive behavior disorders	163	
		653 Delirium, dementia, and amnestic and other cognitive disorders	NR	
19	Psychiatry	654 Developmental disorders	46	
		655 Disorders usually diagnosed in infancy, childhood, or adolescence	142	
19	Psychiatry	656 Impulse control disorders, NEC	NR	
19	Psychiatry	657 Mood disorders	51	
5	Psychiatry	650 Adjustment disorders	108	

Psychiatry

670 Miscellaneous disorders

NR

571

NR: Not Reportable