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ABSTRACT

This report details the program activities of the Department of Health Services of the Denver Schools, 1972-73. The first section, New Projects and Special Activities of the Department, presents health programs initiated in elementary and secondary schools and among adult employees. The development of a joint plan to give community health and field training to student nurses is also highlighted. The second section of the publication deals with the basic function of health services in the field of education. Some of these functions are assurance of a safe school environment, detection of physical defects in children, assistance in health instruction for students, and promotion of follow-up health care. The third section presents the plans of the health department for 1973-74. Some of these plans include a) developing an instrument for measuring the level of health awareness, health information, and motivation among secondary school students; b) initiating a cooperative program for accident prevention; and c) instituting a program of conversion to metric measurement. The publication also includes a list of the health department personnel. (BRB)

DEPARTMENT OF HEALTH SERVICES

Denver Public Schools

FORTY-EIGHTH ANNUAL REPORT

1972-1973

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August 1973

Dr. Louis J. Kishkunas
Superintendent of Schools
414 Fourteenth Street
Denver, Colorado 80202

Dear Dr. Kishkunas:

These few lines will serve to welcome you as superintendent of the Denver Public Schools and to present to you the forty-eighth annual report of the Department of Health Services.

The report details the activities of the Department during the 1972-1973 school year. I am proud of the Department staff and their activities and accomplishments. I hope that you will share that feeling as you become better acquainted with our efforts.

Any review such as this must acknowledge and express appreciation for the support and assistance given the Department. Mr. Howard L. Johnson and the members of the Board of Education have given generously of their time and thought and we are grateful to them. Our associates throughout the District have assisted in ways both numerous and frequent. Basic has been the support and cooperation of pupils, parents, and citizens in the community. We are indeed appreciative to all and will continue to strive to repay full measure in our work with the children of Denver.

Respectfully yours,

John M. Lampe, M.D.

John M. Lampe, M.D.
Executive Director
Department of Health Services

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Linda Schroeder, R.N.
Margaret A. Twining, R.N.
Jane Will, R.N., Long-term
Naida Wolke, R.N.

*On leave all or part of school year

FOREWORD

The time honored expression "A Sound Mind in a Sound Body" remains a valid summation of the philosophy of the Department of Health Services of the Denver Public Schools. The efforts and programs reviewed in this annual report are intended to contribute to such a goal. Some of the activities are immediately and individually applicable such as vision testing or the scoliosis survey; others are conceived in a different time frame and are more general as staff training and utilization. Continuing effort is made to analyze all department activities in relation to basic goals. As health conditions in the community or technology changes or special need arises, adaptions, deletions or additions are made. The format of the report reflects this orientation in that the major sections are:

I. New projects of the year
II. Basic functions
III. Future plans

Hopefully, portions of Section I are incorporated into Section II, and ideas in Section III become realities in Section I in succeeding reports. Neither must Section II remain unchanged.

The staff of the Health Services Department takes both pleasure and pride in their part of these efforts to provide for each pupil in the Denver schools "A Sound Mind in a Sound Body." The following pages explain those efforts in 1972-1973.

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TABLE OF CONTENTS--Continued

TIMING AND FREQUENCY OF SOME ROUTINE SCHOOL HEALTH SERVICES FOR PUPILS

TYPE OF SERVICE	Grade												
	Kg.	1	2	3	4	5	6	7	8	9	10	11	12
VISION SCREENING TESTS: at certain grades; all new pupils at other grades	X	X		X		X		X			X		
HEARING SCREENING TESTS: at certain grades; all new pupils at other grades	X	X		X				X					
DENTAL EDUCATION AND/OR INSPECTIONS: at certain grades (except a few schools) and some prophylaxes; periodic DMF surveys in high school			X	X	X		X	X					
WEIGHT AND GROWTH MEASUREMENTS: on all new and referred pupils (often done cooperatively with P.E. teachers as part of the fitness program)	X	X	X	X	X	X	X						
NURSE INTERVIEWS with parents of all kindergarten children	X												
MEDICAL APPRAISALS: (a) all pupils who participate in varsity sports or NDCC who do not bring reports from private or clinic physicians											X	X	X
(b) pupils who participate in swimming classes when private or clinic physician reports are not obtained								X	X	X	X	X	X
MEDICAL AND/OR NURSING APPRAISALS: (a) all pupils with suspected health or learning problems without current reports of family or clinic physicians	X	X	X	X	X	X	X	X	X	X	X	X	X
(b) all pupils being considered for placement in special education	X	X	X	X	X	X	X	X	X	X	X	X	X
SPECIAL SERVICES: (a) mandatory skin tests for those who have not had one within nine months								X					
(b) scalp ringworm inspection		(as needed)											
(c) other nuisance diseases		(as needed)											
(d) color vision rechecks by the school nurse								X (new pupils here)					

I. NEW PROJECTS AND SPECIAL ACTIVITIES OF THE DEPARTMENT, 1972-1973

A. Activation of new city regulations to prevent communicable tuberculosis among school employees

Considerable time was given to meeting with staff members of the Communicable Disease Division of the Bureau of Health and Hospitals to plan towards the implementation of the new city regulation. It was adopted some months ago by the City Board of Health. Practical difficulties due largely to shortages in personnel and budget in the official public health agency have arisen to delay making the liberalized control measures operational. Further planning will be necessary to initiate the new plan, utilizing skin tuberculin tests in addition to chest x-rays for control of communicable TBC among all employees. Cooperative efforts are continuing with administrative personnel of the City Health Department for eventual changes in the TBC control measures.

B. Survey among upper elementary age girls for scoliosis

A posture survey program, designed to discover scoliosis, was instigated and carried out in the Denver Public Schools during the 1972-73 school year. This study was done in a manner similar to studies carried out in Honolulu and Los Angeles. A pre-adolescent with a crooked back can be treated medically until growth ceases and bones mature. If this is done with exercise and braces, a hazardous operation can be avoided. Thus, early discovery and treatment can alleviate much suffering and deformity which occurs in young women. Because 80% of scoliosis occurs in girls, the survey embraced mostly this group. However, a few boys were inspected.

Such a survey is not entirely new to the Denver Public Schools. During 1965 to 1968, a posture survey was carried out by an expert physio-therapist in the Denver junior high schools. This was an inclusive survey with attention to muscle imbalance as well as scoliosis. In this survey, 3,327 girls enrolled in the seventh grade in all junior high schools were inspected. Ten of these were found to have rather severe scoliosis and were referred to private physicians. The physical educator-physio-therapist was re-assigned and others did not elect to carry on the screening, although the project seemed well accepted and several girls received benefits. Nothing of a formal nature was done again until the past year. The Hawaiian and Los Angeles school reports helped to rekindle interest in this problem. These studies emphasized that young adolescents become shy, and few people, including parents, have an opportunity to look at their backs. At a slumber party, on a beach, or while sun bathing a friend notices the back is crooked. To the untrained eye, a scoliosis becomes evident when the degree of angulation is 30°. Such a back is so badly deformed that surgery is usually necessary. Only by x-ray can the degree of twist be demonstrated adequately.

In Denver the past year, a posture survey of all fifth and sixth grade girls plus all others who showed signs of impending pubescence.

was carried out by school nurses. The nurses were instructed by an orthopedist and a pediatrician on how to examine a dorsal spine. When a girl was suspected of having scoliosis, she was brought to a central school for inspection by an orthopedist. The final decision rested with the x-ray which was taken at Children's Hospital, at the Denver Public Schools' expense. In this survey, 6,914 girls were examined, mostly from fifth and sixth grades, although some other girls with signs of early maturation were also seen. These varied from third through fifth grade. The final number referred for x-ray was 89. Eighty-two girls, who were referred, had x-rays taken. In the 2°-20° angulation, there were 75 girls. When the angulation is over 10°, the girls need careful observation and a number will be advised to wear a Milwaukee brace. All girls with over 20° angulation will be advised to have medical treatment - Milwaukee brace and exercise. The girl with 30° or more angulation may require surgery.

This survey, we think, is a service which is difficult to obtain in any other manner than the way it was carried out. The nurses who did the screening, spent many long hours conducting the examination. The end result, it is hoped, will be a group of upright young women who can look forward to a life without back pain and deformity.

C. Analysis of illness-related absences in certain elementary schools

Several school nurses, with the assistance of Dr. Margaret Hitchman, one of the consultant psychiatrists, kept data on the illness-absences for first grade pupils in eight elementary schools. Three low, three middle and two high socioeconomic communities were included in the study.

This limited project identified first grade pupils with short term or long term patterns of absence, through teacher conferences. These data supplied some ideas of the health causes of absences from school and thus what needed to be done to improve attendance. The participants felt the project was of sufficient significance to propose the following on a voluntary basis for all nurses working with first grade pupils during the coming school year.

1. First, that school nurses meet with first grade teachers and school principals to discuss purpose and goals of study in these phases of the survey:

   a. Identification: The school nurse will review records of all first grade pupils on a certain day each week. (always the same day) Pupils having (1) more than three days of absence during the week and (2) pupils with one day of absence each week for a period of two weeks or more - due to illness - will be included in the study.

   b. Health Record Review: The school nurse will note health data and developmental history from the kindergarten interviews reported on the individual health record.

c. Cumulative Record Review: Attendance pattern in kindergarten will be noted.

d. School Nurse Conference with Pupil: Exploration of reasons for the absences from the child's point of view.

e. Parent Conference: If illness is the reason for the absence, the school nurse will hold a parent conference to consider the situation. If other reasons are identified for the absence of the child, the school nurse will discuss the case with the school social worker.

2. Secondly, that concise data be kept and reported to the Director of Nursing so the findings may be analyzed and subsequent programs be developed to lessen school illnesses and absences as far as possible.

D. An inservice credit program for recertification of nurses

A recertification credit inservice program was conducted during the 1972-73 school year. A course for two-hour credit was developed as, "New Trends in Child Health." It included the following categories:

1.	New Trends in Treating Eye, Ear, Nose and Throat Conditions of the School-Age Child	6 hours
2.	Identification of Orthopedic Problems	4 hours
3.	Child Battering	6 hours
4.	Learning Disabilities	6 hours
5.	Child Growth and Development	6 hours
6.	Adaptive Physical Education	4 hours
7.	School Nurse Role in Disasters	4 hours
8.	Adolescent Seminar	8 hours
9.	Sickle Cell Anemia Implications	4 hours

These credit hours were approved by the Colorado Department of Education for recertification of school nurses. The classes were held on Mondays, from 4:00 to 6:00 p.m. for twenty-four weeks of inservice training.

E. Designation of two demonstration schools to explore innovative nursing activities

The two nurse coordinators each work half time in an elementary school and have been interested in planning and trying some different methods and ways of work. This past year, routine screening pro-

cedures, an essential component of any school health program, were offered at different grade levels. These procedures should be provided to promote a coordinated health concept in children. This goal may be lost in the mass screening process.

Also, combining various screening programs at different grade levels has shown promise of minimizing fragmentation. Some successful examples were vision screening combined with height and weight for fifth grade students and a posture survey, heights and weights, and an individual conference on personal health status for sixth grade students. Exploration of this approach is expected to continue.

The school nurse coordinators working in the demonstration schools have a practical and operational base for consultation with staff nurses. An effort will be made next year to determine if the quality of consultation is seen as improved by the staff nurses.

The purpose of demonstration schools was well stated in the April 1971 "Journal of Educational Research" to "...generate, investigate, field test, and demonstrate innovative, productive solutions."

F. High-frequency audiometry among rifle team members in the high schools

Special testing for hearing abilities in the high-frequency range of 8,000-18,000 Hz was done on 98 high school students during December 1972. They were from 16 through 18 years of age and were all members of the rifle teams. A Tracor Manual Response Audiometer was used. The Department of Health Services is very appreciative of the cooperation and interest of the NDCC staff and the students that made this survey possible. It is most noteworthy that the NDCC immediately established more safeguards to protect the hearing of these cadets for the coming year. Ear muffs will be made compulsory for all members of the rifle teams.

The findings from both individual questionnaires and the audiometry were as follows:

Of the 41 girls tested--

a) 40 fired right-handed and one left-handed.

b) 36 spent 2-4 hours on the firing range, 3 spent 5 hours per week, and only 2 spent more than 5 hours per week.

c) 37 competed in matches of 1-1/2 to 2 hours duration every other week.

d) only 2 participated in other shooting activities besides their rifle team activity.

e) of the 41 girls, only 1 has worn ear plugs for 2 years, and only 2 have started wearing them recently. All the others have never worn plugs.

f) 17 reported some history of ear problems. Two of these were related to swimming and 3 were recent and related to flu.

Of the 57 boys tested--

a) 53 fired right-handed and four left-handed

b) 33 spent 2-4 hours per week on the firing range and 24 spent one hour or more daily.

c) 48 of the 57 competed in matches of 1-1/2 to 2 hours duration every other week.

d) 32 of the 57 reported participating in hunting or target shooting in addition to their rifle team activity.

e) of the 57 boys tested, 8 wore plugs at all times, 2 wore plugs outside of school when shooting, 2 once wore plugs but do no longer, 12 reported they only recently started wearing plugs while shooting. Therefore, of the 57 at present only 20 wear plugs while participating in rifle team activity.

f) 18 of the boys reported history of ear problems. Two of these were related to swimming.

The results above indicate that the boys' group, in matter of time spent on firing range and participation in shooting other than rifle team activity, have slightly greater exposure than the girls' group.

The following chart shows the median threshold in decibels at each frequency tested:

	10K	12K	14K	16K	18K
Boys					
R Ear	28	49	43	59*	69*
L Ear	22	46	30	57*	68*
Girls					
R Ear	19	44	37	53*	62*
L Ear	18	42	32	51*	63*

*Indicates this number is probably lower than a true average because the maximum on this machine is 80 decibels and testing could not be done beyond it. Several students could not hear at the 80 decibels.

The handedness factor appears to make no appreciable difference in the results. The boys' slightly greater exposure indicated in the questionnaire also is not greatly reflected in the difference between the thresholds of the boys and the girls.

The following chart shows the comparative thresholds between these subjects and the "non-exposed" boys and girls tested at a junior high school in the Denver Public Schools study conducted in 1970.

		10K	12K	14K	16K	18K
Boys (non-exposed)	R Ear	10	15	20	29	41
42 (ages 12-13)	L Ear	9	15	17	26	37
Boys (rifle team)	R Ear	28	49	43	59*	69*
57 (ages 16-18)	L Ear	22	46	30	57*	68*
Girls (non-exposed)	R Ear	15	18	22	30	43
58 (ages 12-13)	L Ear	14	17	18	26	38
Girls (rifle team)	R Ear	19	44	37	53*	62*
41 (ages 16-18)	L Ear	18	42	32	51*	63*

In an additional study at this same junior high school in 1971, a group of 42 "highly noise-exposed" males, ages 12-14, were tested. The median thresholds in decibels are compared with median thresholds of the males in the rifle team group in the following chart:

		10K	12K	14K	16K	18K
Noise-exposed	R Ear	18	40	36	51*	59*
Males (ages 12-14)	L Ear	18	37	32	49*	56*
Rifle team	R Ear	28	49	43	59*	62*
Males (ages 16-18)	L Ear	22	46	30	57*	63*

SUMMARY

Comparison of these various data indicate higher median thresholds for those subjects with greater exposure to noise. Therefore, the Health Services Department of the Denver Public Schools makes the following recommendations relating to the school rifle team programs:

1. Continued special testing and studies are warranted because of the risk to hearing from noise trauma among secondary school-age students.

*Indicates this number is probably lower than a true average because the maximum on this machine is 80 decibels and testing could not be done beyond it. Several students dould not hear at the 80 decibels.

2. All rifle team participants should wear ear plugs. This must be enforced. Plugs of the expansion variety should be provided so hearing will not be occluded but the trauma of explosion will be cushioned and the ear protected. Most plugs now available in the ROTC departments are not this kind.

3. Concerted effort should be made to sound cushion the rifle ranges in all of the high schools to as nearly equal degree as possible. At the present time there are considerable discrepancies between the different ranges.

4. All current rifle team members should be given a yearly hearing test with the high-frequency audiometer.

Subsequent to these tests, the directors of the NDCC programs of rifle practice and competitive shooting reported that ear muffs had been ordered and would be required equipment for all students participating in these activities for the coming year.

G. Cooperative study with the Pediatrics Department of the CU Medical School on growth measurements of Hispano surnamed pupils

The Denver Public Schools Department of Health Service has cooperated with the University of Colorado Medical Center in an attempt to develop growth charts for Spanish surname children.

The rationale for this study is that the growth curves presently used are not an accurate reflection of the generally shorter and lighter Hispanos.

Height, weight, and head circumference measurements of children in a predominately Spanish surname and Mexican school population were taken.

Children, ages birth to 14, were included in the study. School children dressed in underpants only were weighed and measured (heights and head) by a technician employed by the University of Colorado Medical Center.

H. Study of a selected group of elementary pupils with strep throat infections

When leadership in the Westside Coalition developed a neighborhood anti-strep project with funds from the Colorado Heart Association and the Regional Medical Program, it was helpful for the schools in the area to be involved in emphasizing diagnosis and treatment of sore throats. The school nurse practitioner in one of the elementary schools gave extra attention and follow-up to all pupils with symptoms and signs of tonsillitis and/or sore throats.

Throat cultures were taken on 411 children during the year and 105 (25%) were found to be positive for Beta Hemolytic Type A streptococci

organisms. The monthly numbers of pupils going to the nurse with complaints of sore throat or being referred to the nurse by the teachers, plus the siblings of those with known positive clutures, were as shown below:

Month	Total Boys Cultured	Total Girls Cultured	Total Number Cultures Taken	Total + Beta Hem. Strep Type A
September	5	4	9	4
October	14	16	30	6
November	11	18	29	9
December	8	7	15	5
January	11	18	29	11
February	45	44	89	28
March	31	35	78	22
April	21	35	56	19
May	24	49	73	20
June	1	2	3	1
TOTALS	411	105 (25%)	171	240

One-hundred and three (103) of the 105 with positive strep cultures received treatment. No cases of acute rheumatic fever occurred but four cases of glomerulonephritis were reported; two cases of scarlet fever; and 21 cases of middle ear infection (otitis media) occurred in this group of children.

More teaching about strep organisms, their identification and potential damage, and the great value of prompt and adequate chemotherapy was also stimulated by the community leaders and the school nurse. It is believed that both parents and pupils in this school have learned more about the danger of sore throats and the need for good health care.

I. Development of work plans for new health assistants

Over the past several years the Department of Health Services has considered the addition of para-professionals to the staff. To date this has been accomplished in the area of vision-screening technicians and the resultant experience proved most satisfactory. The

department has also used high school students as nurse aides. This is done as a work-study project in the area of vocational education. It too has been a satisfactory undertaking.

Additional study in 1972 resulted in a budgetary request which was approved. It projected the employment and utilization of "health assistants" for the 1973-74 school year. The necessary administrative planning was accomplished during the second semester of the 1972-73 school year. Five individuals will be employed in September 1973. They will be assigned in more than one pattern to assist nurses and carry out special projects. The different patterns of utilization will be compared, evaluated, and those most advantagrous selected for continuance.

J. Special individualized program of dental education and prophylaxes to prevent tooth decay

In selected schools, particular emphasis was given to teaching some pupils better brushing and flossing of their teeth to remove dental plaque and thus try to prevent decay.

The dental program has been stressing these important personal practices for the past several years. Recently the hygienists have been scheduled about 1/5 of their time in the schools to do scaling, polishing and fluoride applications in addition to the dental education. This seems to be a valuable contribution to pupil health and, therefore, will become a routine portion of their responsibilities for the coming year.

The prophylactic service was done upon need and when parents approved and requested it in writing.

Last year, in 19 elementary schools and 8 junior high schools, the individualized education and dental cleanings were given as shown in the following tables:

Elementary Schools	Total Pupils Served	Total Time (Days) Used by Dental Hygienists
Ashland	25	3
Barnum	41	3
Brown	30	4
Bryant-Webster	20	3
Cheltenham	42	5
Fairmont	19	2
Fairview	53	5

(continued on next page)

(continued)

Elementary Schools	Total Pupils Served	Total Time (Days) Used by Dental Hygienists
Garden Place	76	5
Gilpin	45	4
Greenlee	113	7
Mitchell	32	5
Munroe	22	2
Newlon	48	3
Park Hill	54	4
Schenck	21	3
Smith	82	7
Swansea	29	6
Westwood	31	3
Whittier	99	10
TOTALS	882	84 Days

Junior High Schools	Total Pupils Served	Total Time (Days) Used by Dental Hygienists
Baker	17	3
Cole	49	5
Horace Mann	54	5
Kepner	17	3
Lake		3
Morey	20	3
Rishel	40	4
Skinner	47	4
TOTALS	244	30 Days
GRAND TOTALS ELEMENTARY AND JUNIOR HIGH	1,126	114 Days

K. Immunization study with the State Department of Public Health in nine elementary schools

During the second semester, tabulations were done in nine schools as to the recorded level of various immunizations on all the pupils and how much the immunizations might be increased by three different methods of health promotion and health services. In each of the three groups (called, henceforth, A, B, and C) a cross-section of schools by socio-economic characteristics was included. Thus, three schools representing relative high, medium, and low income levels constituted each group.

. . . . In Group A schools (with 2.000 pupils) school nurses and State Health Department personnel searched the pupil health records and determined the immunizations needed by each child. Explanatory notes were sent only to parents of pupils who seemed in need of additional protections. The notes requested that parents update the information and to sign a request slip if they wished other immunizations to be given their children at school when a State Health van and team would be at the schools the next month. Data were kept on the time expenditures of the school nurse and the State Health Department staff members.

. . . . In Group B schools (with 1,835 pupils) the school nurses sent out explanatory notes including permission slips for parent signatures to obtain more immunizations at school the next month. These notes were distributed to all students at one time.

. . . . In Group C schools (with 2,122 pupils) the mobile van and State Health team were not used. The emphasis was on health education to both students and parents to motivate them to get needed immunizations from either private physicians or clinics. The values of disease protections, including regular immunizations, were stressed in classrooms, auditorium programs, PTA newsletters, and in various other educational ways. The immunization levels were tabulated at the beginning of the project and a survey of parents was made about two to three months later to determine if any had obtained more immunizations for their children. The project required considerable time of the school nurses, particularly in the Group C schools, although the survey results will reveal some helpful findings as to how immunizations can be accomplished most efficiently.

A full analysis and report of the results will be made available from the State Department of Public Health. Typical findings are shown below as they pertained to measles immunizations.

Group	Initial % of Pupils Immunized	% Protected After Updating By Parent Responses	% Protected After Service By State Mobile Van	% Protected After Appeal To Parents
*GROUP A				
Knight	79.3	86.4	95.5	
Brown	67.8	74.0	93.3	
Mitchell	51.5	58.9	83.1	
GROUP B				
Ash Grove	88.9		93.7	
Lincoln	47.4		55.5	
Wyatt	41.9		53.9	
**GROUP C				
Edison	44.3			44.3
Gilpin	50.2			50.6
Taylor	73.1			73.5

*School nurses reported their work time spent on this project to be 59 hours, 65 hours, and 31 hours respectively. In addition, some volunteers gave assistance.

**Two school nurses in this group of schools reported 21 hours and 13 hours were spent in promoting health education for immunizations. They reported very fine cooperation of the principals and teachers and regretted the short period of time during which parent action to get immunizations for their children might be expected.

In summary, even these partial data, which reflect the protection levels against measles, indicate strongly that when health services are easily and immediately available, they are likely to be utilized. Still, significant differences occurred among parent groups in their use of the State Health Department services for immunizations. More attention needs to be given to the promotion and facilities for immunizations prior to the activation of the new state law requiring certain protections at the time of school enrollment.

L. Cooperation with state and city health departments' project in offering immunizations to the 12 elementary schools with the lowest levels of protections and doing sickle cell testing

The Immunization Division of the State Health Department offered its services to go to the elementary schools with the lowest average levels of protection against rubella, measles, whooping cough, diphtheria and polio. Twelve schools were about 60-70% immunized according to data from the previous year's survey. Joint planning

was done with both city and state public health personnel as well as with the involved principals and school nurses. The latter carried the major responsibilities for setting up the clinics, orienting and coordinating parent volunteers with the technical staffs and supervising the general clinic activities.

In addition to the four immunizations offered, and done upon parent request, sickle cell tests were also available and encouraged for all the pupils from Negro or Mediterranean backgrounds who might have the trait or the disease. Parents were urged, by letters and general community publicity, to bring their younger children to the schools for these protections.

The total numbers of pupils given immunization were:

Immunization	K-6	Pre-school	Total
DPT or DT	1,380	34	1,414
M/R	1,035	36	1,071
Measles	244	2	246
Rubella	192	9	201
Polio	1,501	39	1,540

DPT - combined diphtheria-pertussis-tetanus for younger children
DT - combined diphtheria-tetanus for older children
Measles - hard measles
Rubella - 3-day or German measles

The total given sickle cell tests were 763 school age, 28 of per-school age, and 4 adults. There were 44 positive among those of school age, 3 positive among the adults, and one positive in the pre-school age group.

The immunization procedures done, according to school, were as follows:

SCHOOL	DPT or DT	M/R	Measles	Rubella	Polio
Ashland	149	111	16	14	157
Preschool	5	7	0	0	9
Cheltenham	97	75	24	13	115
Preschool	5	3	2	5	6
Crofton	78	64	4	12	85
Preschool	0	0	0	0	0
Elmwood	114	77	28	18	137
Preschool	2	3	0	0	3
Fairview	99	66	40	15	138
Preschool	2	2	0	0	3
Garden Place	60	50	7	10	54
Preschool	1	0	0	1	1
Greenlee	157	127	33	18	147
Preschool	1	3	0	0	2
Munroe	102	66	15	14	103
Preschool	1	3	0	0	5
Sherman	98	41	17	9	78
Preschool	0	0	0	0	0
Smith	164	122	21	28	177
Preschool	6	5	0	2	8
Swansea	85	63	18	25	113
Preschool	4	3	0	1	2
Whittier	177	173	21	16	197
Preschool	7	7	0	0	0

M. Assistance in developing teaching unit regarding sickle cell disease

At the time the Black Advisory Committee made it recommendations to the Board of Education to arrange comprehensive sickle cell testing programs for all Black pupils, it was decided that sickle cell disorders were of sufficient interest to warrant the development of a teaching unit for inclusion in biology and/or general science classes in the secondary schools. To understand the disease requires knowledge in biochemistry and genetics, and little has been put in the textbooks to date. A physician on the Health Service staff prepared a paper on the medical aspects of sickle cell disorders to be used in the science curriculum when adapted to an instructional unit. Such a unit, with accurate health information, references, visual aids, and pupil activities, was distributed to junior high school science teachers this past semester.

N. Pilot project for throat cultures in an elementary school with an undue prevalence of scarlet fever

A surprising incidence of scarlet fever was diagnosed and reported in later 1972. A total of 18 cases, over half of them among children in two first grade rooms, required that more thorough checking for additional health data, and perhaps identification of "carriers" be done. Therefore, in cooperation with the Laboratory Director, Dr. McGuire, and staff at the State Department of Health, a culturing program was carried out in January and February of 1973.

Initially, the first grade pupils were cultured and 38 positives found in 97 children. Secondly, a week later, the whole school was cultured with 147 (18%) of 804 pupils found positive. On the second culturing, the first grade children showed 16% positive cultures.

An interesting further lab study on the positive cultures (first grade) has been the typing done at the Fort Collins Federal Strep Laboratory. In the 38 positives, no M types were found, but a scattering of T types among eleven sub-groups existed. Dr. McGuire reports that this shows the infections came predominantly from chance sources and the neighborhood--not from within the school. It would have been a single type had it been a common exposure.

During this special project, 50 adults were also cultured and three found positive. All took medication promptly. It is of interest that the two teachers in the first grade rooms, where the majority (11) of the scarlet fever cases occurred, were each found negative on two separate culturings about a month apart, and neither had suffered scarlet fever or sore throats or had used chemotherapy during the few weeks of the high attack rate among the pupils. No more cases of scarlet fever occurred after January in this school. An attempt was made, via requests to the parents of all pupils with positive cultures, to ascertain the amount and kinds of antibiotic therapy given the children, but replies were obtained on about two-thirds of them and only about half of these had medications prescribed.

In summary, it seems the careful scrutiny given this situation and the considerable extra work of the school nurse and PTA volunteers stimulated a great deal of interest in strep infections and, hopefully, for the future, will promote earlier care and treatment for children with scarlet fever symptoms. There were no sequelae of heart damage or glomerulonephritis among the 18 children who had scarlet fever.

O. Tabulation of immunization levels among kindergarten pupils

In conjunction with the nurse-parent interview, now a regular part of the Department of Health Services program, information was sought regarding immunizations on kindergarten children. The data represents reports from the parents plus information sent by attending physicians, routine enrollment questionnaire and records from Head Start. It is then as accurate as is possible where medical history is the primary input source.

The data is recorded by school building so it is not only age related but geographically related as well. When coupled with other sources of information from the community, it provides the basis for immunization status and intervention if indicated. (see section L)

Number of kindergarten enrollees as of December 1972 6,862
Number on whom information was available 4,952
Those reporting were 72% of the total.

Immunization	Number with Protection
Smallpox	3,491
Diphtheria-Tetanus	4,802
Mumps	1,504
Polio	
Type I	2,959
Type II	2,845
Type III	2,796
Trivalent	3,283
Rubeola	4,095
Rubella	3,685

Of those responding, the following percentages of children immunized was approximately:

Smallpox	70.5%	Rubeola	83.0%
Diphtheria-Tetanus . . .	97.0%	Rubella	75.0%
Polio (with Trivalent).	66.5%	Mumps	30.4%

P. Participation in the program for disruptive pupils developed by the Departments of Special Education and Psychological Services

The increasing awareness of so-called "disruptive" pupils has warranted further school attempts at alleviation of the stress and turmoil they seem to cause in the classrooms. Characteristics of these students include emotional over-reactions and instability, low motivation, poor study habits, disinterest in school achievement and/or attendance, and resistance to discipline. They could be helped (and the sooner the better) with accepting and personalized attention beyond that reasonably available in a regular classroom.

The school nurses and occasionally school physicians, including the consultant psychiatrists, have been involved in reporting data and assisting others with this special program for these children. Special teachers serve in this project named the "Program for Pupil Assistance." Last year 525 pupils from 35 different schools were given help with the more individualized curriculae, special classes, and intensified counseling. The PPA is to be continued next year. The Health Services personnel are pleased to participate in it with the Department of Special Education and the Departments of Psychological and Social Work Services.

Q. Assistance in development of an extended Family Life Education Program at a junior high school

Several meetings were held by faculty and parent representatives and some school resource persons to plan extensions in both time and grade level coverage in Family Life Education. The time was fortuitous at this school because of increased concern by parents and youth for the school to move from a one- or two-day program to a more inclusive teaching outline. Previously, only the seventh grade classes had a specific program in FLE. This past semester, both the seventh and ninth grade pupils had some instruction and discussions on health and social problems of the adolescent years.

Committee members included the assistant principals; science, physical education and social studies teachers; and several parents. Objectives of the new program were outlined and plans made to integrate the subject areas and materials among the faculty members involved in meeting student concerns and questions in the various areas of FLE.

The plan was presented to two different groups of parents at evening meetings. Parents were asked to respond to the proposed program. As expected, the response was varied. Some parents voiced opposition to any mention of abortion. Others felt the program was not as inclusive as it should be. Most parents approved of the plan and strongly recommended that those who did teach have adequate preparation and motivation and good rapport with students.

The seventh grade program included five, one-period sessions. The classes were taught by science and physical education teachers and

the nurse in the science classrooms. Boys and girls were separated and parent permission was obtained. The filmstrips "Masculinity and Femininity" and "Learning About Sex" were used to initiate discussion. Three films, "Girl to Woman," "Boy to Man," and "The Miracle of Reproduction" were also shown. Pupils were encouraged to ask questions and discuss their feelings and opinions. On the last day, students were asked to evaluate the program and their appraisals were varied with the majority saying the discussions were the most valuable portion of the unit.

The ninth grade program was broader in content, but unfortunately, the time allowed was shorter and the groups were too large. The aims of the program were: (1) to help students become aware of responsible sexual behavior, (2) to review physiology of the reproductive organs, (3) to present problems of pregnant girls and expectant fathers, and (4) to give facts on venereal disease. Visual aids included filmstrips "Learning About Sex" and "Young, Single and Pregnant" and the film "Half A Million Teenagers." Again, boys and girls were separated and parent permission was obtained. Each student received two class periods of instruction (films and discussion). The unit was taught by the nurse and physical education teachers with assistance from two school physicians.

The school newspaper carried a critical summary of the ninth grade unit with the writer stressing that the school must help prepare students for the adult world by providing the right kinds of information. He stated that "you will not make us more promiscuous by telling us facts..."

In summary, the up-dated and expanded Family Life Education Program was not a complete success. However, it was a great improvement over the past offerings. Much was learned by students and by faculty members. Input from parents, teachers, and especially students was most beneficial. As one teacher put it, it was a good beginning and the expanded program for both seventh and ninth grade students should prove more satisfactory next year.

R. Development of a joint plan to give community health and field training for nursing students at Loretto Heights School of Nursing

Next year, the seniors in this school of nursing will earn six semester hours of credit while participating in the public school health programs. This cooperative arrangement will provide:

(1) Nursing staff personnel with opportunities to function as educators in a school of nursing,

(2) Student nurses with the opportunity to observe and participate in school health work, and

(3) utilization of the public schools as appropriate settings for community health education.

S. Surveillance project on absenteeism in two pilot schools for the State Department of Public Health

In order to have maximum warning for an expected upswing in flu cases last winter, a few schools and a few industries in the state were asked to report their weekly amount of absenteeism. (The total number of pupils away from school each day was recorded and weekly totals made of these daily absentees.) These data were reported regularly to the Disease Control and Epidemiology Division of the State Department of Public Health from November 1972 through March 9, 1973.

The two junior high schools (Skinner and Kunsmiller), which were selected as pilot schools, showed no significant variations in weekly absence rates during this 17-week period. The amount of absenteeism was unexpectedly stable: for Skinner it varied from 1,242 to 1,287 and for the Kunsmiller student group from 1,695 to 1,710 per week. In each school this is approximately identical amounts of absenteeism, for the school enrollment at Skinner was 1,250 and Kunsmiller was 1,800 students.

It is apparent there was no great increase in the influenza cases during this time--and that the schools' roles as possible indicators of community illnesses could not be clearly determined in this situation.

T. Review and revision of health standards for adult employees

The Denver Public Schools has for many years utilized a set of guidelines entitled "Health Standards for Employment" in evaluation of prospective employees. These have been reviewed and revised periodically in light of current medical practice. Such review was undertaken in 1972-73 and changes made in the guidelines after consultation with the Superintendent and the Board of Education. The revised standards were completed and distributed in April 1973.

U. Health-related problems of children with learning disability

The Department of Health Services has long been interested in health associated problems among children with learning disabilities. In this area department personnel participated in a survey developed by the Colorado State Department of Education to study the incidence of special education needs in Colorado in October and November 1972. Department members also met regularly with a multi-disciplined study committee whose objective is to further understanding between medicine and education. During the year an advisory committee to the State Board of Education was formed with representation from the Department of Health Services on it. The committee's charge is to consider problems in the area of special education and ways and means of meeting current needs.

V. Additional follow-up of health problems of adult employees

During the past year a process was implemented for periodic follow-through attention for employees on sick leave. Occasional contacts

are made with the employees to learn if they are improving, healthwise, while away from employment duties. This has been helpful to project their future assignments more compatibly with their health needs and to plan the specific time for return to work.

W. Partial analysis of accident reports in certain curriculum areas at the secondary level

A study was carried out during the summer of 1973 on those accident reports received by this department, specifically in the fields of industrial arts, science, home economics, and art. The reason for selecting those particular subject areas for review followed a breakdown of all accident reports received and the knowledge that another department was analyzing in depth those accidents occurring in Physical Education, on school grounds, and in other school settings.

The number of accidents in the specifically designated four courses seemed to exceed those for other general subject areas and, therefore, be worthy of more concentrated study. Since careless use of machinery, hand-held equipment, and chemicals seemed to outweigh minor mishaps, it was thought that the department directors in each of the selected subject areas would find such an analysis helpful in working with their instructors. It was also known that students in these courses are required by their instructors to pass periodic examinations in the use of hazardous equipment, so that again such a preliminary study was considered to be a supportive instrument for teachers in these fields to reinforce their safety requirements. Final data will, therefore, be shared next year with the directors of the departments involved as part of this initial study.

II. BASIC FUNCTIONS OF THE SCHOOL DEPARTMENT OF HEALTH SERVICES IN THE EDUCATION OF CHILDREN AND YOUTH

A. Health Services to assure a safe and wholesome school environment

1. Selection of healthy adult employees

Medical and health evaluations are a basic service performed by the school medical staff for both new and previous employees.

Pre-employment appraisals are required on teachers, clerical staff, maintenance, and all other personnel. Last year pre-tenure appraisals were done on 365 teachers, and 253 pre-employment medical appraisals were done on new teachers. Periodic medical appraisals were done on 35 lunchroom workers and medical appraisals were done on 232 new lunchroom workers. Annual medical appraisals were made on 135 bus drivers, and another 68 new drivers were given medical exams and clearance as required for their driving licenses. There were 115 applicants for clerical work who were seen by the medical staff; 5 nurses, social workers, and other employees; 988 substitute teachers; and 149 maintenance personnel. Thus, a total of 2,518 employees were given medical appraisals in 1972-73, slightly more than the 2,338 employee examinations in 1971-72.

2. Implementation of city health and building regulations

In cooperation with various municipal departments, the standards for new buildings and grounds, gymnasiums, pools, shops, and lunchrooms are maintained. City sanitarians have been helpful in promoting high standards in swimming pools and lunchrooms and kitchen facilities. No cases of food-borne illnesses are known to have occurred during the past year and great care is taken to assure lunchroom sanitation.

3. Application of control measures to stop the spread of illnesses

a. Implementation of official health rules

By the regulations of the Bureau of Health and Hospitals, adults and pupils who are ill are excluded from, and re-admitted to school. There were no serious outbreaks of communicable diseases last year although streptococcal diseases still hold at a fairly steady incidence while other common childhood infections are declining. Last year one employee with shigellosis was kept from work until proven bacteriologically safe to return to the school group.

b. Prompt attention to ill children and exclusion from school

It is the policy of the schools to exclude pupils who are ill. During the past year 20,662 such exclusions were made

of elementary children, 13,511 of junior high school, and 8,317 high school pupils. This total of 42,490 exclusions was 6,417 less than in 1971-72 and the decline occurred entirely among those in secondary schools.

The nurses do classroom inspections at times of threatened epidemics. They routinely screen elementary pupils for scalp ringworm in the schools where cases have occurred the past year and thereafter in schools exposed to this fungous infection. Only a few cases occurred in 1972-73.

During the past year infectious hepatitis was reported in 60 pupils. The prior year 39 pupils were known to have had infectious hepatitis and the preceding year 58 pupils were reported to the city health department to have infectious hepatitis so the past year brought some increase of this viral disease among the school-age group.

4. Health consultations and periodic evaluations on adult personnel

By established policy, school employees report to the medical staff in the central office when returning to work after illnesses or accidents either causing twenty days or more loss of work or being of a nature to warrant medical clearance. Last year 226 employees were seen by the school medical staff after such absences although 184 had been seen in 1971-72. In addition periodic examinations and special health conferences are available upon request as physician time allows. It is thought these and other professional contacts with personnel are worthwhile if they add to the fitness of the adult employees.

B. Health Services to detect conditions among pupils which would diminish their most effective participation in educational activities

1. Routine screening tests for vision, hearing, and dental health

Increasing attention is being given to learning disabilities among pupils. Medical and nursing skills are utilized frequently to counsel with these children and their parents, as well as faculty members. Subtle neurological changes, maturational lags, and emotional blocks to school progress are more difficult to evaluate, diagnose, and correct than are usual sensory impairments. However, one of the basic responsibilities of school health personnel continues to be the accurate detection of these conditions that interfere with the learning and to aid in the follow-through efforts for both remediation defects and the optimum programming for the pupil.

Children who must repeat grades, who perform poorly, or who get discouraged and quit school because of poor general health,

faulty vision, hearing, or other deficiencies are costly failures to any community. Therefore, careful screening tests are used whenever possible to detect the conditions that would decrease optimum learning.

In 1972-73 the following conditions were screened and the numbers listed below were reported to be in need of further medical attention:

	ELEMENTARY	JR. HIGH	SR. HIGH	TOTALS
VISION: Number tested	29,002	9,448	5,505	43,955
Number referred for follow-up attention (after two checks)	3,205	1,141	606	4,952
HEARING: Number tested	24,453	2,488	1,284	28,225
Number referred for follow-up attention	594 2.4%	140 5.6%	77 5.9%	811* 2.8%
DENTAL: Number inspected**	14,868	3,613		18,481
Number referred for follow-up care	6,424	1,604		8,028
Number needing better brushing	4,384	994		5,378

*About half of these defects were already known and half were newly detected and given initial follow-up attention.

**Dental inspections were not carried out in 23 elementary schools in which high rates of dental care already existed. The dental education programs were continued, however, but dental hygienist time was thereby saved to be scheduled for intensified work in the schools with greater need. Fewer pupils were inspected during the year with more emphasis placed on changing dental behavior where it seemed most needed. About one-fifth of the dental hygienist's time was scheduled to give prophylactic attention and teaching to individual pupils.

Further audiometric evaluations were given at the central office to 763 school children, 96 pre-school children, and 8 employees. In addition speech and hearing-aid evaluations were done on 44 individuals during the past year. All of these services were increased over those rendered to pupils and adults in 1971-72.

Color-vision tests are routinely done through the science and/or guidance programs in the seventh grade. Kodachrome slides of seven selected Ishahari charts are used to screen test classroom groups. Later nurses give the individual pseudo-isochromatic color-vision tests to the pupils who fail the group test. The school nurses then counsel pupils and their parents and share information with the guidance, vocational, art, and science teachers regarding the few pupils who are color deficient in their vision.

The amount of color-vision deficient holds quite consistent. In fact in the past two years and this year, data have been practically identical. In 1970-71 3.0% of boys and 0.3% of girls were found to have color-vision deficiencies, in 1971-72 the percentages were exactly the same as the previous year, and in 1972-73 3.1% of boys and 0.1% of girls were found to have some color-vision deviations.

During 1972-73 results obtained in each school were as follows:

SCHOOL	BOYS		GIRLS	
	Total Number Tested	Number and Percent Who Seemed Color Deficient	Total Number Tested	Number and Percent Who Seemed Color Deficient
BAKER	110	3 (2.7%)	86	0 (0%)
BOETTCHER	12	2 (16.6%)	6	0 (0%)
BYERS	134	6 (4.5%)	123	0 (0%)
COLE	121	2 (1.7%)	141	0 (0%)
GOVE	113	1 (0.9%)	113	0 (0%)
GRANT	156	6 (3.8%)	117	1 (0.9%)
HAMILTON	235	10 (4.3%)	232	0 (0%)
HILL	243	10 (4.1%)	227	2 (0.9%)
J.F. KENNEDY	266	5 (1.8%)	299	0 (0%)
KEPNER	242	6 (2.5%)	239	0 (0%)
KUNSMILLER	268	11 (4.1%)	240	0 (0%)
LAKE	148	7 (4.7%)	157	0 (0%)
HORACE MANN	171	7 (4.1%)	212	0 (0%)
MERRILL	250	8 (3.2%)	203	1 (0.5%)
MOREY	108	7 (6.5%)	87	0 (0%)
PLACE	212	4 (1.8%)	202	0 (0%)
RISHEL	195	3 (1.5%)	205	0 (0%)
SKINNER	226	7 (3.1%)	193	0 (0%)
SMILEY	378	6 (1.6%)	363	0 (0%)
TOTALS	3,588	111 (3.1%)	3,445	4 (0.1%)

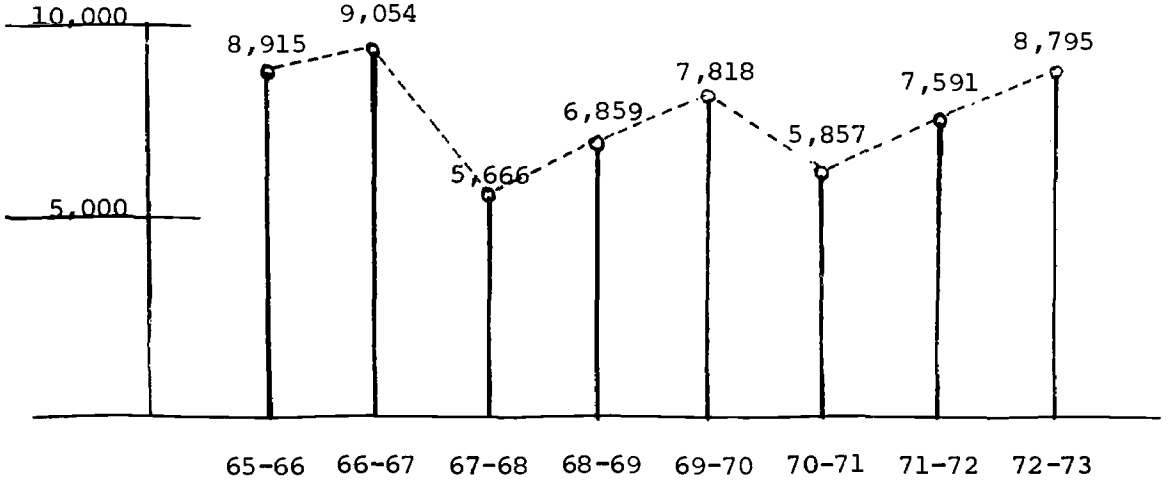
2. Periodic medical appraisals to evaluate general development and significant physical conditions and defects

The part-time examining physicians were scheduled among the schools and appraised the health and physical conditions of new pupils, of those referred for suspected defects, and of those with other special needs for whom parents had requested such appraisals. Partial health histories are gathered from all pupils as a part of this health appraisal. Parents of elementary school children are given definite appointments and urged to come to school on the day of the doctor's visit.

Often the parents of junior high school pupils having health appraisals are notified and encouraged to come if they wish to discuss any special health needs. The older pupils, as in high school, prefer to be more self-directive during the medical appraisals and counseling and thus parents are not invited routinely to attend the school physician examinations.

Continued and strong emphasis is given to the participation of private and clinic physicians in the periodic medical evaluations of all children and youth. Special record blanks are provided to family physicians and to the community health clinics. The department first printed such blanks for the private physicians in 1942. It was hoped these would provide a record of pupil health information known to the family physician and save duplication of medical services by the schools.

The returns for the past eight years are as follows:

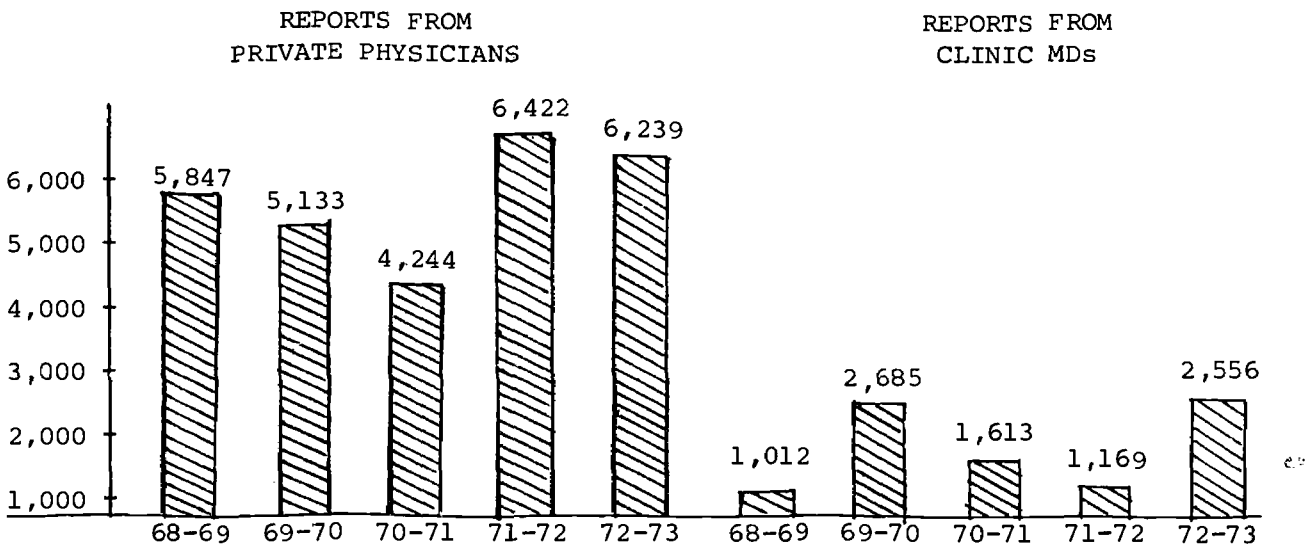


The 1972-73 data are shown below in comparison with the data of the previous two years:

	1970-71	1971-72	1972-73
Medical reports from elementary schools	4,239	5,367	5,718
Medical reports from junior high schools . . .	1,073	1,034	1,392
Medical reports from senior high schools . . .	545	1,190	1,685
	5,857	7,591	8,795

The increase of 1,200 reports from private physicians hopefully reflects the emphasis placed on obtaining medical reports from the attending physicians whenever they are rendering regular services to pupils. During 1971-72 private and clinic medical reports were received at all 118 regular schools and this city-wide response is encouraging. In 1972-73 there was evidence from private physicians' reports of the same fine and wide coverage of all schools in the city. The time of school physicians should be directed to children who do not have regular medical care.

The medical reports from private physicians and public clinic physicians are now tabulated separately. The new network of federally-funded city health clinics is allowing more services to pupils. Of the 8,795 physicians' reports 2,556 (29%) came from the local hospitals pediatric departments and the Neighborhood Health Centers. Private physicians sent in 71% of the reports and the last five-year responses are shown below:



In 1972-73 for the second year in our school system, physical and health evaluations were performed by both school physicians and the school nurse practitioners. The latter group of specially trained nurses numbered 20 and were assigned to 25 schools (21 elementary schools, 1 junior high school, 3 senior high schools, and the Metropolitan Youth Education Centers). The total pupil enrollments, evaluations, and findings in the major areas of abnormalities are as follows:

AGE GROUPS		TOTAL SCHOOL AVERAGE MEMBERSHIP	TOTAL GIVEN ROUTINE HEALTH EVALUATIONS	TOTAL GIVEN EVALUATION BY SCHOOL MD	TOTAL GIVEN EVALUATION BY SNPs
ELEM.	Girls	23,821	2,489	1,528	961
	Boys	24,637	2,643	1,751	892
JR. HIGH	Girls	10,277	630	618	12
	Boys	10,793	812	808	4
SR. HIGH	Girls	8,869	736	621	115
	Boys	9,007	1,315	1,263	52
TOTAL	Girls	42,967	3,855	2,767	1,088
	Boys	44,437	4,770	3,822	948
GRAND TOTALS		87,404	8,625	6,589	2,036

The use of school physicians has been declining in time scheduled and pupils examined. School employed physicians gave health evaluations to 12,056 pupils in 1969-70, to 10,487 in 1970-71, and to 6,126 in 1971-72. In the past year they performed about 550 more examinations while the SNP gave over 900 more health evaluations.

3. Screening tests on preschool children for hearing and vision

a. Hearing

Well-trained volunteers from the Delta Zeta Sorority carried out the tests using a Puretone audiometer on all preschool children.

Mrs. Marion Downs, clinical audiologist at the University of Colorado School of Medicine, continues to serve as consultant.

Last year eight perschool groups were done with the following results:

(1) Total number given common sound test	1,266	
Results:		
Number of children who heard normally	1,120	(88.5%)
Number of children who failed test	146	(11.5%)
Additional number of children unable to be tested	76	
(2) Total number of children rechecked at the Department of Health Services by June 1972 of the 146 above	96	(65.7%)
Results:		
Normal	76	(79.2%)
Given medical referrals at once	12	
Dips (to be rechecked next year)	8	

(3) Final reports of the 12 children who were given medical referrals:

Four were treated for otitis media
One had a ruptured ear drum
One had a bilateral neurosensory hearing loss
Three were being treated for allergies
Two were reported to have normal hearing
One -- no follow-up received

b. Vision

During the past year, also, the Delta Gamma Volunteers carried out preschool screening. One of their community services has been to offer vision screening tests. Last year 24 volunteers gave 248 hours time to this important program.

The following data has been summarized and reported:

(1) total number screened	1,195
(2) total rescreened by school nurses	100
(3) number referred for professional exam	23
(4) number unable to screen	46

Of those referred for further professional care, nine had received attention by the close of school with corrective lenses, eye patches or checks on strabismus. Two more had appointments for care.

C. Health Services to assist in health instruction for all pupils

1. Cooperative efforts with instructional personnel on materials and inservice training

New textbooks, posters, movies, and other health teaching aids are regularly reviewed and evaluated before approval or purchase. In both the selection of materials and the production of health instruction materials, the Health Services staff is most concerned to appraise the scientific accuracy of the teaching aids.

A gradual shift is taking place in the focus given to drug education, family life education and related areas involving personal values and decisions. While accurate information and data are essential and sound bases for behavior and may be effective for some pupils, other pupils seem to require other approaches to learning for behavioral decisions. Thus, educational research for some time has directed more attention to the affective (feeling and emotional) aspects of behavior because one's attitudes and decisions for action depend on one's perceptions of the advantages (rewards) versus the disadvantages (costs) resulting from his actions.

This conceptual approach in teaching, though more difficult for most to do, seems the most promising course to follow when presenting materials on such topics as smoking, alcohol, other drugs, nutrition, dental, venereal and other diseases and family life education.

Personnel of the Health Services are aware of the increasing need for better health education during the school years.

2. Educational emphasis on all health procedures

Elementary pupils particularly are prepared for the routine health services. Teachers or nurses explain what will be done and why during such procedures as scalp ringworm inspections, growth measurements, vision and hearing tests, dental inspections, and general health appraisals. As far as possible the children participate in the procedures and thus gain understanding of them. Occasionally peer groups of students have contributed also to instruction and motivation of classes in health matters such as personal health decisions regarding drugs, eating habits, and dental care.

3. Work with faculties for classroom health units

The nurses offer considerable assistance to all teachers by supplying materials or assisting directly with health instruction. Some reported activities in health instruction were:

	ELEMENTARY	JR. HIGH	SR. HIGH	TOTALS
Number of times materials and counsel provided	3,811	525	740	5,076
Number of classes taught	1,428	253	246	1,927

The major load in Family Life Education in the elementary schools was carried by the two specially trained teachers to give leadership in this area of instruction. Considerable help was obtained from the school nurses and some help from school or community physicians, particularly on venereal disease in the secondary schools.

Other health topics such as skin care, tuberculin testing, immunizations, posture, smoking, drugs, population control, venereal disease, and cancer were discussed by school nurses or physicians upon request from teachers.

4. Tuberculosis education and testing in the science program

All of the junior high schools continued to carry out skin testing procedures, using Mono-vacc tests to detect tuberculin sensitivity among those of early adolescent ages. It had been a voluntary program prior to the 1968-1969 school year for those in the eighth grade. Since then it is a city regulation that the schools notify all parents that certificates of Tine testing should be presented to the school by new pupils and by all those in the seventh grade.

For many years, tuberculin skin testing has been a part of the health teaching in all junior high schools. The eighth grade was formerly the designated age group for the instruction and testing and now, to comply with the local health law, the seventh grade group of students are tested.

The last ten-year record of the positive reaction rates denotes a fairly low incidence of past tuberculosis infection in this large group of young adolescents.

1962-63.....1.1%	1966-67.....2.00%	1970-71.....0.6%
1963-64.....0.9%	1967-68.....0.8%	1971-72.....0.2%
1964-65.....1.27%	1968-69.....1.1%	1972-73.....0.7%
1965-66.....1.6%	1969-70.....0.6%	

In 1972-73 the school nurses did the Tine tests again although Mono-vacc tests had been used a year ago. A total of 6,686 pupils (94%) were tested by the school nurses and the majority of the rest was done by private physicians and clinics. The tabulation by schools of the seventh grade skin testing is shown on the chart below.

SCHOOL	NUMBER OF PUPILS			KNOWN EXPOSURE TO TB	NUMBER AND PERCENT OF POSITIVE REACTIONS
	Enrolled	Tested at School	Tested by Private Physician or Clinic		
Baker	234	225	4	2	8 (3.9%)
Byers	313	298	15	1	9 (2.9%)
Cole	317	287	11	0	2 (0.7%)
Gove	223	205	18	0	1 (0.4%)
Grant	248	235	13	0	1 (0.4%)
Hamilton	506	447	38	0	6 (1.2%)
Hill	463	445	13	2	11 (2.4%)
J.F. Kennedy	572	557	15	0	0 (0.0%)
Kepner	490	487	3	1	1 (0.2%)
Kunsmiller	557	546	11	0	0 (0.0%)
Lake	418	399	19	2	8 (1.9%)
Horace Mann	385	354	12	1	1 (0.3%)
Merrill	383	356	21	1	1 (0.3%)
Morey	216	207	4	0	0 (0.0%)
Place	414	400	14	0	0 (0.0%)
Rishel	405	397	0	0	0 (0.0%)
Skinner	419	394	25	0	1 (0.2%)
Smiley	545	435	61	1	1 (0.2%)
Boettcher	12	12	0	0	0 (0.0%)
TOTALS	7,129	6,686	297	11	49 (0.7%)

D. Health Services to promote follow-up care and correction

1. Nurse counseling with pupils, parents, teachers, social workers, and other school personnel

School health programs increasingly emphasize the correction of defects, not just their detection. Nurses carry the major responsibility to inform, motivate, and counsel parents and pupils about desirable follow-up for each type of health problem or deficiency. Data listed below give evidence of the extensive efforts made last year.

	ELEMENTARY	JR. HIGH	SR. HIGH	TOTAL
Contacts with pupils for counseling	36,311	26,131	12,895	75,337
Contacts with parents (on pupils):				
Home visits	2,629	859	239	3,727
School conferences	9,614	2,571	1,976	11,161
Telephone calls	41,433	17,872	14,771	57,076
Contacts with community health resources:				
Public health clinics	5,013	1,530	1,652	7,195
Private clinics	2,294	633	975	2,310

The above data reflect more counseling with pupils and somewhat fewer school and at home and by telephone to the home.

2. Intercommunications between school health personnel and private physicians or clinics or both

Family or clinic physicians can contribute greatly to the school's understanding of pupils who have important health problems. An easy two-way report blank serves this purpose and allows the health staff to summarize for the doctor the school's concern about an individual child. On the blank a request is made for the pertinent medical comments and suggestions from the family or clinic physician to return to the school.

Below is the past two-year summary of data as well as that for 1972-73 when an unusually helpful response (74%) of physicians reported to requests from the school nurses.

	1970-71	1971-72	1972-73
Total requests sent private physicians and clinics	644	530	494
Total returned	450	394	368

The school health services are often requested by the family doctors or clinics to furnish observational reports and/or test data for the child. Because improvements in child health are best accomplished by teamwork, this sharing of information by writing, calling, or by personal conferences is essential and encouraged, although it is time consuming.

3. Cooperation with other community health agencies

Pupil information is shared and therapy plans integrated with many clinics and agencies.

For instance, last year the school nurses knew of and worked with about 200 pupils receiving care from the Handicapped Children's Service and many others receiving care at the clinics at the Denver General Hospital, Denver University Speech and Hearing Clinic, Colorado General Hospital, Children's Hospital, Sewall House, Colorado Hearing Society, the Diagnostic Service for Rheumatic and Congenital Heart Disease, and the Developmental and Evaluation Clinic at Children's Hospital.

E. Health Services to assist with other needs of some pupils

1. Medical appraisal of those with physical, mental, and emotional problems which seem to interfere with learning

Teachers are encouraged to observe children carefully and to report any obvious or suspected health problems to the nurses. Also, pupils with more severe problems are usually discussed with principals and coordinators. Emotional factors are often intertwined with physical conditions, and these pupils benefit by additional help from the social workers and psychologists. It is estimated that from ten to twenty percent of pupils require attention from various personnel auxiliary to the teacher in order to meet and overcome special health and learning problems. Nurses schedule these pupils for appraisal by the school physician whenever medical care seems indicated and is not being obtained from private physicians or in clinics.

2. Placement in special educational classes

Children are referred to special classes when they are found eligible for them. Those with physical handicap as blindness, deafness, low vision, impaired hearing, cardiac, orthopedic, speech, and other deficiencies are provided with special educational help by the schools. Increasing attention is given to those with perceptual and emotional problems.

Increasing numbers of students have been seen the last four years.

1969-70....	678
1970-71....	836
1971-72....	949
1972-73....	1,070

Their growth was checked, vision and hearing tested, past history obtained, previous medical care noted, and counsel was sought from private and clinic physicians. Then an educational plan was recommended on the best judgment of all concerned.

In the processing of these pupils towards special education classes, past medical histories and diagnoses are sought. Last year about 300 contacts in writing were made to private physicians, public clinics and hospitals and community agencies regarding these children and their problems. The new classes for perceptually handicapped pupils started five years ago and have been extended with consulting psychiatrists and other health service staff members giving more time to these special groups.

During 1972-73 when 1,070 new applicants for special education were processed by school health personnel, it was found that primary and current medical data came from school physicians in 538 instances and from private physicians on 149 pupils. The other 383 pupils had varied and other sources of health data as from local clinics, and past diagnostic studies in out-of-city health facilities. One hundred fifty of the special education enrollment forms on health information came from the evaluations of school nurse practitioners and the other (920) came from the regular school nurses. All were helpful in planning new and adaptive programs to individual pupils.

Fortunately children and youth with emotional problems are now receiving more attention from both community and educational facilities. Our consulting psychiatrist is a liaison between the schools and the State Hospital and local mental health treatment centers to assist in placement and programs for these students.

The department also works with students who are out of school for illnesses or injuries and thus are homebound or hospital-bound. Last year 114 of these pupils received instructional help from the Department of Special Education.

They were prevented from attending school for many reasons but trauma (36 cases) was the primary cause of disabilities, next neoplasms and congenital conditions, while infections were infrequent. Four of those with physical health problems were being treated for scoliosis (all were girls) and two were being treated for acute rheumatic fever. Fourteen were being treated for emotional illnesses, eight of whom were from out of the city.

3. Contributions of the consultant psychiatrists

The five part-time consulting psychiatrists on the medical staff continue to serve the schools in various ways. Their assignments are somewhat regionalized among certain schools to facilitate their work on emotional problems of pupils, faculty, and/or the community where they can be more familiar with the situations and needs.

Last year the types of professional assistance and the number of times they were rendered to the school system was as follows:

a. inservice to faculties or groups - 60
b. direct consultations to staff members - 28
c. administrative functions or activities - 64
d. direct consultation regarding pupils
   (1) elementary - 66
   (2) secondary - 42
e. direct service to personnel - 65

A total of 1,273 hours of psychiatric time was spent in these services. Attention was often given to classroom problems, inter-personal relationships, school-community needs and chronic or acute mental health problems of employees.

Psychiatric help is routinely given to all girls entering the community school although regularly scheduled visits are no longer made there. This past year emphasis focused more on disruptive students and their individualized program needs.

Also the chief school psychiatric consultant has assisted greatly in arranging hospital and homebound teaching for emotionally ill students. Ten such students were enrolled during the past year which was a larger number than had been programmed in previous years.

Personnel problems also required more psychiatric attention last year. Contacts with adult employees varied from occasional personal counseling and referral to sources of private psychiatric care to assisting in the process of sick leave for psychiatric reasons. In several instances psychiatric assistance and planning was given to arrange early retirement or other termination of employment because of severe repeated or intractable psychiatric disorders. It should be noted that we have seen many more employees, both certified and classified, with severe problems of alcoholism this year. Almost without exception we find that these employees have been known to, and in essence protected by, their immediate supervisor for considerable periods of time. Referral to Health Services has often seemed to be a "last resort" at which point referral for treatment has been difficult to bring about.

4. Help in first-aid care of injuries

The Department of Health Services helps to establish policies for the emergency care of accidental injuries. The school nurse is responsible for the first-aid program, equipment, and supplies in the schools. In addition all employees are required to have some first-aid training. This preparation of the employees assures their competent first-aid care for pupils and thus allows many other important duties, other than first-aid work, to be done by the nurse. However, the more serious injuries are cared for by the nurses unless they are out of the buildings and then pre-arranged plans are carried out.

All accidental injuries must be reported to the Department of Personnel Services and to the Department of Athletics, Recreation, and Safety. More detailed data are available from the latter office, which collects and analyzes the reports on injuries known at school.

5. Medical reports on "battered" children

The central office of the Department of Health Services has relayed the reported instances of physical abuse of children to the designated authorities as required in the state law. Since the law went into effect, special forms are filled out and cases reported to officials of the law enforcement and welfare departments.

Now that the law has been modified to extend legal immunity to several others besides physicians within the schools who may know of cases of child abuse and report them, i.c., social workers, principals, teachers, and so forth, no complete accounting has been made within the schools. The current law covers more kinds of mistreatment than just physical abuse. The school person knowing the most about the injured or abused child is authorized to report it to the authorities.

F. Additional Department of Health Services responsibilities

1. Continual evaluation of Department activities

The need to adapt and improve is a continuing one in all areas of the school health services. Focus must be clearly held on the school-related health needs of the pupils and the employees to maintain programs which are most worthwhile and justified on school funds. It is often regretable that the press of routine daily schedules makes it difficult to critically analyze work results. The department hopes to balance its attention to every day demands with that of prudent planning for more effective future programs.

When requests come to the department for new projects and activities or when special activities are initiated with the staff, four questions need be asked:

a. Is the objective (of the project or activity) worth the cost involved?
b. How does this objective compare with others competing for the same resources? (this helps set priorities)
c. If the objective is valid, will it get achieved by the project or activity as planned and staffed?
d. Are other alternatives available to achieve the objectives more efficiently?

New projects should be undertaken only when they have favorable answers on the above. With good and careful planning prior to

starting on projects, the basis is laid for efficient and relatively easy evaluations during and after the projects. Then questions such as these must be asked:

a. Was the problem (or adverse situation, etc.) reduced to a level from that which would have happened anyway?
b. If such a change occurred, was it the result of the project?
c. Was the change large enough to justify the cost?
d. Were the results (findings, changes) of use to the schools or community for future programs to improve health?

2. Close rapport and administrative planning with medical and dental profession and with official and non-official health agencies

Last year the full-time medical staff participated in many health meetings and conferences in the schools, with other school departments, and with city and community health groups. The local public health department furnished some visual-aid materials for health instruction, especially about V.D. and drugs. The State Health Department's laboratories have assisted in a limited streptococcus culturing project in a few elementary schools. Both the city and state health disease control experts have given consultant assistance with infectious hepatitis, strep infections, tuberculosis and other cases of serious diseases.

An active medical advisory committee meets occasionally to discuss the department's program. A committee of the dental society has offered assistance whenever it has been sought.

Department representatives--both physicians and nurses--participate in the community health groups which deal with tuberculosis, heart disease, mental hygiene, cancer, alcoholism, diabetes, polio, cerebral palsy, hearing loss, blindness and poor vision, mental retardation, drug abuse, smoking and health careers.

3. Continued cooperative programs with other departments within the schools and with community and civic groups

The Health Services staff is very much aware of its dependence on all other school departments for carrying out its varied kinds of responsibilities. The PTA health chairmen and other volunteers assist with some health projects besides giving support to the whole health program.

The nurses participated in 13,027 meetings or group activities last year.

There were many conferences with staff members of the Visiting Nurse Service and with student teachers. In addition, other health staff members (M.D.'s, dental hygienists, and audiologists) have participated in many community health meetings and activities.

4. Assistance with health, disability, and retirement leaves for adult personnel

Routine conferences and interviews were held with 226 employees returning to work after leaves or illnesses; with 98 to help arrange their pregnancy leaves, with 6 to assist with disability retirements and with 30 to help them arrange for leaves to restore health. In addition 220 medical conferences were held with employees on health problems.

III. FUTURE PLANS FOR DEPARTMENT ACTIVITIES--1973-74

A. Geographic patterning of nurses on daily work assignments

Elementary schools in geographic proximity have been grouped into clusters for the next school year. A request was made to assign nurses who have more than one school, to schools within the same cluster. Other support services were given a similar request so that this small group of professionals might become familiar with co-workers and hold cluster meetings as indicated.

This reassignment of elementary school nurses was undertaken and from past limited experience should be very productive.

B. Credit course with field training for nursing students

Community health experience during the senior year for Loretto Heights College School of Nursing students will be provided in the Denver Public Schools. Six semester hours of credit will be given these students. The program will provide (1) nursing staff personnel an opportunity to function as an educator in a school of nursing, and (2) the public school as an appropriate setting for community health education in nursing education.

C. Adoption of routine annual posture screening by the elementary nurses for upper grade girls

Pilot programs in 1971-72 and again last year indicated the benefits warranted the extra work involved in screening girls at prepuberty and early adolescence for curvature of the spine. It is highly desirable to detect scoliosis when remediation is usually possible and more readily accomplished. Nurse inspection of the backs of all sixth grade girls plus all those in fifth or even fourth grades who are showing signs of pubescence seems the reasonable group to serve.

The screenings are done during gym periods. Prior to the procedure, explanatory notes are distributed to parents and all suspected or positive findings are reported to them after the screenings and rechecks. The latter are done by a consultant orthopedist and by x-rays of the spine.

Careful data will be kept in the coming year so the worth of this project may be further evaluated.

D. Develop and use a testing instrument for measuring the level of health awareness, health information and motivation among a sampling group of secondary school students

The current health problems among the teenage group should receive more attention than our schools are now giving, routinely, to meet these problems. Such findings as untreated, but correctable, sensory deficits, carious teeth and malnutrition and the common personal health problems as drug abuse, venereal disease, and lowered

physical fitness could be improved if more teaching was directed to them. Despite these evidences that youth need to better their physical and emotional health, it is difficult within an educational system to find time and interest among school health leaders to change "talk" into action and thereby build more health instruction into the curriculum.

It is thought that a health inventory of student awareness of these problems, and some measurement of their knowledge, attitudes, and behavioral levels could give guidance for the schools towards a stronger educational approach to affect better health among junior and senior high school students.

It is hoped that a simplified test may be found or developed for trial use during the coming year.

E. Initiate a cooperative program with others concerned in accident analysis and prevention

With the development and use of a new accident report form during the 1972-73 school year, it became both evident that a need existed and possible to restructure accident control. Analysis of the reports was undertaken by the Department of Athletics, Recreation, and Safety and was most illuminating. This was supplemented in some curriculum areas by the Department of Health Services, and it was apparent that there was further opportunity to improve. Cooperative planning will follow in order to safeguard all school personnel--both child and adult.

F. Survey of sound levels in selected schools

Plans are nearing completion for a study of "noise" levels in a few of the more open and the more traditional type schools and classrooms in varying types of classes and for different age levels of pupils. This will be a continuation of the previous audiometric surveys in the high school lunchrooms, and the rifle ranges. This new endeavor will further joint efforts of the Audiology Department staff (and special equipment) from the University of Colorado Medical Center and the school Department of Health Services staff.

Acoustic trauma is becoming a real hazard in the noisy areas of schools, industries, homes, and farms. Even some types of recreations threaten hearing. More should be known about the sound levels in various areas of the school environment where students and adults are subjected to potentially loud and disturbing noises. The school Department of Research and Planning is also participating in this new project as they have in earlier surveys of sounds and hearing acuity.

G. Completion of a new informational booklet on the responsibilities of the Department of Health Services

It is hoped that a new explanatory booklet of the responsibilities and activities of the department may be completed during the coming year. The School-Community Relations staff has given considerable

assistance with compilation and preparation of the material and will help in the printing and distribution of the booklet.

H. Participate in an analytical study regarding instructional materials and pupil responses in dental knowledge and care

School health services and education as well as community and public health services are giving more emphasis and time to preventive dentistry. This is highly desirable as filling cavities is a losing battle with dental decay compared to the benefits of the prevention of decay. The focus in school dental education has always been towards prevention, and recently the dental hygienists have added individualized prophylaxis to their program as described elsewhere in this annual report.

Now a supplemental program will be tried and evaluated in 1973-74 to learn if added classroom emphasis can improve the personal dental practices of pupils. Last year a special series of teaching aids from the Metropolitan Denver Dental Auxiliary was tried in three elementary schools (including one in Denver). The packaged learning units are loaned to a classroom for 3, 4, or 5 pupils to use at one time and get added information, directions, and motivations to take better care of their teeth.

The project is being set up, with the help of the school research staff, for selected schools and to involve fourth grade children throughout a six- or seven-month period when pre- and post-tests and mouth inspections will be done. A comparative analysis will be made of the results of this supplemental educational project in total content and in sections of it by the end of the next school year.

I. A survey of D.M.F. rates in all high schools

Every five years the mouths of all sophomore students are inspected and D.M.F. rates are tabulated for each high school group.

In 1973-74 this procedure is due and will be scheduled as part of the dental hygienists' responsibilities. Volunteers will help with the recording and participants will be recruited from the PTA and the Dental Auxiliary members in each of the nine high schools.

J. Study of health-related causes of absenteeism among adult employees

Absenteeism among adult employees is costly both in dollars and effectivity. Any reduction represents significant gain. The department is logically concerned about those absences which are health-related. It is planned to study such during the 1973-74 school year with the long-range goal of reduction where feasible.

K. Reinstitute issuance of a departmental bulletin

For many years the Department of Health Services issued a regular bulletin concerning health conditions, innovations, problems, and

the like. This was not done in the 1971-72 or 1972-73 school years. Because the bulletin was felt to meet a need, it has been decided to reinstitute its issuance.

L. Initiate a program of conversion to metric measurements in Health Services in conformity with medical practice, generally

Medicine in general has utilized metric measurements to a greater degree than some other areas of activity in this country. To conform, the Department of Health Services will initiate a program in 1973-74 of gradual conversion to metric measurements. Thermometers will be replaced when broken with new instruments with a centigrade scale and future purchases of equipment will be made with this in mind.