DEVELOPMENT OF A WORKSHOP
ON PEDICULOSIS

A project submitted in partial satisfaction of the requirements for the degree of Master of Science in School Health
by
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ABSTRACT

DEVELOPMENT OF A WORKSHOP
ON PEDICULOSIS
by
Sofie Friedman
Master of Science in School Health

Lice infestation in man has been recorded since time immemorial. Public health officials have warned that there is a new surge of pediculosis amongst the school population of the USA. Few people will admit to the existence of a louse problem because of the social stigma connected with the condition.

The purpose of this project was: (1) To assess the prevalence of pediculosis; (2) to investigate methods of treatment, control and prevention of lice infestation; (3) to conduct a workshop for primary grade teachers in order to train them in identifying lice infested children; and (4) to develop a curriculum that facilitates the classroom discussion of pediculosis in units on communicable diseases.
The methods and procedures used for the project included a literature research, survey questionnaires, and letters. The information sought was data on incidence, treatment, control, and prevention of pediculosis. The questionnaires and letters were sent to school nurses working in specific Los Angeles elementary schools and to nursing coordinators of seven Southern California school districts. Manufacturers of pediculicides, public health departments and health organizations were also contacted and the same information requested.

At the project school, teachers were asked to volunteer for a one day workshop on pediculosis. Topics and content for the workshop were chosen, objectives formulated and learning opportunities selected. Evaluation instruments were designed to correspond with the content and objectives of the workshop and to assess the effectiveness of the project. A resource material package for teachers was prepared. This contained brochures and curriculum guidelines to facilitate classroom instruction on pediculosis.

Following the workshop, participants and non-participants were observed during a three week period for their identification and referral practices. The number of lice infested students sent to the school nurse by both groups was tabulated and compared. It was found that workshop participants referred 5.7% of their students
for pediculosis, and that none were referred by non-participants.

At the end of the three week period, the students of both groups of teachers were examined. No additional cases of pediculosis were diagnosed amongst the students of workshop participants, but 5.3% of students of non-participants were found to be infested with head lice.

Pediculosis occurs in whole family groups. Therefore, the diagnoses of infested children by workshop members led quickly to the identification of many other cases of pediculosis. This fact added significantly in achieving control of the disease within the project school.

Conclusions derived from the study demonstrated that: (1) it is possible to train interested faculty to examine children for pediculosis; (2) any member of the staff can be instrumental in the control of head lice before the condition has become rampant in the classroom.
Chapter 1

INTRODUCTION

School children are constantly exposed to communicable diseases. One of the least publicized is pediculosis capitis or head lice infestation. Several reasons account for this lack of publicity. Amongst the reasons would be that the condition is not reportable to the Public Health Department; few people will admit to the existence of a louse problem because of the social stigma connected with the condition; and many physicians do not consider pediculosis to be clinically important.

Regardless of how one views the condition, head lice in school children do exist and are a source of constant concern to school and public health nurses, school faculty, parents and community. Pediculosis occurs in a considerable number of pupils, causing prolonged absences, due to the initial and occasionally due to a secondary infection. Untreated, pediculosis is apt to infect entire families and spread rapidly through a large number of the school population (17:188).

One of the main reasons for the prevalence of head lice is the concentration of large families living under unsanitary, crowded conditions in inner city areas. Here
families share one bathroom, several children might sleep in one bed, laundry facilities are not always easily accessible and hygiene standards vary with the cultural background of the residents (13:23-4).

At present, the task of identifying and controlling head lice falls to the school nurse. The inner city schools have a large enrollment, and the turnover rate of pupils is between fifty percent and one hundred and fifty percent per semester. Families move frequently back and forth across county and state borders and in and out of the country making it impossible to institute a long-range pediculosis control program.

The schools under survey for this project serve large, often new immigrant families. Health services are many times neither known, nor available to them. The school health team frequently serves as the first and only source to diagnose health problems existing in children of these families. Priorities must be set. Case finding of health deficits could be shared with other professionals, provided they have the necessary information. Head lice identification and control is one such area where the responsibility could be allocated to other staff members. This would pave the way for introducing an alternate method of reducing the incidents of pediculosis in the population.

For instance, the school's faculty along with the school nurse could be involved in a project of lice control. A teacher need only survey the children in his or her own
classroom. If this is compared with the present situation, where the nurse is responsible for the entire school population, it becomes clear that eradication of pediculosis in elementary schools could occur at a significantly faster rate.

In such a project teachers would be asked to devote more time to health instruction. The emphasis of modern medicine is on prevention. A prerequisite for prevention is education, education in health practices.

Health education is recognized to be part of the elementary curriculum. Due to lack of time and inadequate teacher preparation, little health instruction takes place in the schools. Furthermore, many teachers feel ill at ease in the discussion of sensitive health topics. Once these deficits are corrected, teachers will be more confident and effective in providing meaningful health education (36:165-71).

Small children have a natural curiosity about their bodies and they will talk freely about conditions that affect them, provided this exchange of ideas and experiences can take place in a safe non-threatening atmosphere. They like to help each other and they do respond well to praise concerning their appearance. These youngsters have not yet learned that some diseases carry a social stigma. A well informed teacher can talk to them about head lice without damaging their self-esteem. To accomplish this task, the staff needs to overcome any emotional blocks
they might have about discussing subjects that, have in the
mind of some people, a negative connotation.

The Problem

Regular head inspection by the school nurse is
difficult to carry out because of the nurse's heavy work
load. At best, complete surveillance of all children in
the school can be done once per semester. Follow up on
identified cases of pediculosis is complicated, for the
children frequently do not report back for clearance by the
nurse. Even though teachers should not let pupils return
to the class without consent from the school nurse, chil-
dren manage to do so.

According with the regulations of the California
State Department of Public Health, children are excluded
from school when a diagnosis of pediculosis is made. After
treatment with an effective pediculicide, the child may
return to school. Usually this occurs within two to three
days. At times, children are absent from school much
longer.

Purpose of the Project

This health education project grew out of all the
aforementioned considerations. The purpose was to insti-
tute a program for control of pediculosis capitis in ele-
mentary school children. This was to be accomplished in a
twofold manner. First, by developing a curriculum for the
use of primary grade teachers. Second, by conducting a
workshop to assist the members of the faculty to increase their knowledge about pediculosis, to identifying infected pupils and to refer infected children to the school nurse.

**Importance of the Study**

It was anticipated that this program would be instrumental in achieving the following four goals:

1. Through teacher participation in this program, head lice control can be achieved quickly before the condition would become rampant in the classroom.

2. Teachers would become more adept in looking at the whole child and be able to identify health problems long before the student appears before the school health team.

3. Such undesirable habits as sharing brushes, combs and clothing would be eliminated, once the students understand that these articles are seriously involved in the spread of head lice infestations.

4. The program could be utilized by other school nurses and health educators for presentation to staff and parent groups.

**Limitations of the Study**

Teachers were asked to volunteer for the program. Five out of thirteen volunteered for the program. Random selection of actual participants was not possible due to the small sample size.
Another limitation was the fact that pediculosis is spread in the home as well as in the school. Parent cooperation was essential for the long range control of the condition. Most parents will follow directions explicitly once a diagnosis of head lice has been established; yet a few, for various reasons, might not be able to go through all the steps necessary to break the life cycle of the louse and reinfestation eventually would occur.

Due to the paucity of recent literature in this particular area of research, some findings used in this study originated in the author's own experience as a school nurse.

Organization of Remaining Chapters

Chapter two is a survey of the literature relating to pediculosis and pediculosis control through health education.

The third chapter describes the target population, the planning of the program, program design and evaluation tools.

The program and program findings are presented in the fourth chapter.

The fifth and final chapter contains the summary of the project, conclusions derived and recommendations for future applications of the program.
Definition of Terms

1. Communicable Disease: is an infectious disease transmitted from one person to another by direct or indirect contact.

2. Durbec Comb: A steel comb with fine teeth used to remove nits from hair.

3. Incidence: signifies the rate of occurrence of new cases of a disease within a given population at a defined time interval.

4. Hygiene: pertains to accepted standards of personal and environmental cleanliness conducive to health.

5. Infection: means the invasion of the body by an organism causing damage to tissue and to health.

6. Infestation: this term is used in this paper to indicate the presence of lice on the head.

7. Lice: is the plural for louse.

8. Louse: is a wingless insect with three pairs of legs found on the hairy parts of mammals.

9. Nit: is the egg of the louse cemented to the hair shaft.

10. Pediculicides: is a medication applied to infested body parts to destroy lice and nits.

11. Pediculosis: is a skin disease due to infestation by lice.

12. Pediculus (humanus) capitis: is the latin term for head louse.
13. **Prevalence:** refers to the percentage of population studied that is affected by a disease at a given geographical area at a specific time.

14. **School Health Team:** is composed of a group of professional persons concerned with the health of school children. Usually the team includes a doctor, a school psychologist, speech and hearing specialists and the school nurse.

15. **Secondary Infection:** is the implantation of a new infection upon a pre-existing one.
Chapter 2

REVIEW OF THE LITERATURE

The literature was examined to find the extent, causes and treatment of pediculosis. Of special interest was the exploration of new concepts in prevention of head lice infestation within the schools and in the community. The other items in consideration were who will be most effective in carrying out a preventative program, and who would best be qualified to instruct towards this end with the most lasting effect and the greatest gain in knowledge.

Biological Data

In order to fully comprehend the prevalence of head lice in any society it is necessary to know some biological factors about the parasite itself.

The sucking lice belong to the order of anaplura. They have a flat body with three (3) pairs of legs with large claws adapted to clinging to hair or fibers and a mouth part adapted to sucking the blood of the host (5:790). Cheng described two (2) racial forms or subspecies: Pediculus humanus or body louse and the Pediculus humanus capitis or head louse. The main differences between the two (2) races are size, color and habits of living and egg laying. The former is found on the hairy part of the
host's body and mostly deposits its eggs on the fibers of clothing, while the latter inhabits the human neck and head and cements its eggs to the shafts of hair (3:809).

Faust said it is believed that the body louse developed from the head louse when man began wearing clothes and shaving his hair and beard (5:793). Cheng states that they do interbreed (3:809). The head louse has been shown to turn into the body louse if it is forced to change its location on the human body, stated Oldroyd (19:55).

The egg of the pediculus humanus is approximately 0.8 mm by 0.3 mm and yellowish in appearance. It is provided with a cap or airvent on one end that admits air during development and facilitates the escape of the young nymph—the name for the young insect (48:5). The mature pediculus capitis lays about 80-100 eggs during its 4-5 week life span. The complete development cycle from egg to egg is completed in approximately three (3) weeks. Temperature is very critical for the hatching of the egg and must be no less than 28° C and greater than 38° C (3:809).

The parasite prefers a constant body temperature, low humidity, and it is known to leave the body of persons suffering from high fever and of that of the dead (1:21). There are indications that pediculi adapt their color to the skin and the hair of their host (2:15). Pediculi do not like light (18:430).

The human louse is host specific. It can complete the entire life cycle on one host. It feeds by sucking the
victim's blood and hence has no need to seek another environment. Transference from one host to another occurs only when individuals of the same species come in direct contact or share the same articles (3:81?). "Head lice can be spread by the shared use of a personal item such as a hat, hairbrush, comb or towel. They are also known to wander from an infested person onto upholstered furniture, bedding, etc." (53:27).

Prevalence

Man has been aware of the existence of pediculosis since time immemorial. Hans Zinsser wrote in his often quoted classic book, entitled Rats, Lice and History: "We can ascertain, since man has existed, the louse has been his inseparable companion" (24:182). He noted that the ancient Jews and Egyptians knew the louse was undesirable and that it was detected on the scalps of American Indians and Peruvian Mummies (24:175-7). He suggested that shaving of the head and wearing a wig during the middle ages was an attempt to combat the ever present louse population (24:186). The effect of lice and louse-borne diseases on soldiers of ancient and modern wars are well described in detail in the history books.

There even was a time when man ascribed some useful function to the parasite. Lice were thought to cure ailments such as tooth-ache, conjunctivitis and malaria (3:123). Linnaeus suggested since lice were found in such
quantities on children, surely they must have some protective properties (24:187).

In more recent times lice infestations are frequently observed in areas where standards of sanitation are low, poor people live under crowded unhygienic conditions and during wars when normally clean people cannot bathe or have access to clean clothing (23:436-9).

Buxton said that no human race is without lice or immune to them. Lice are not restricted to any society or to any geographical region. "The parasite are found from the Arctic to the Tropics and may infect rich or poor" (2:15). Faust added: "Hardly a village or school house exists in any part of the world, where one or more individuals are not infested with head-lice" (4:333).

Wexler quoted Buxton:

It is sometimes stated that if people wash they will get rid of lice and nits. This is not the case, for soap and water at temperatures which can be tolerated do not assure the destruction of either. In many parts of the world there are people who are very clean in the sense that they continually wash away dirt, but they remain very lousy . . . (45:127).

Buxton felt that hot and dry weather tends to decrease the louse population. On the other hand, he suggested that louse infestation may be more closely related to human activities than to temperature. He stated that the incidence of louse infestation was higher in the winter when people wear more clothes, and congregated in large groups as during social and religious events (2:70). Top agreed with Buxton on the rise of pediculosis during the
winter months because of more and heavier garments being worn. He also added that people tend to bathe less when it is cold (23:436-9).

Buxton wrote that children generally are more infested with pediculosis than are adults. Girls, because of their longer hair, are more infested than are boys (2:67). Askew felt that a certain amount of resistance to head lice is developed with increasing age (1:21).

Top noted, without giving an explanation, that pediculosis capitis is not commonly seen in negroes (23:436). Ashcroft made the same discovery in Guyana. He reported a high rate of louse infestation in school children of East Indian descent, but none in children of African origin attending the same schools and of the same socio-economic background. "The oval cross-sectional shape of the African hair," he thought, "may be less favorable to pediculosis capitis than the round shape of the East Indian hair" (26:547).

In an address to the American Medical Association in San Francisco in 1972, Ackerman talked about a surge of new cases of pediculosis and scabies in our society (25).

A study in Chile where 53,556 persons were examined, showed that 25.9% were infested with head-lice. The study population consisted of school children and old people, a group that was more prone to infestation than the rest of the population. Males made up 17.3% of the cases and females made up 22.5% of the cases (42:2-6).
Pegum reported in 1972 that the incidence of head lice are increasing (39:453). One source in Fall of 1974 showed that between five and seven percent of a selected school population in Los Angeles had live nits in their hair. In other California school districts 3.6% of surveyed school children were found to have pediculosis. (Personal Information).

Orkin reported in 1974 that head lice in young children have recently been seen more frequently and that there have been regional epidemics causing schools to close temporarily in New York, Indiana, Michigan and British Columbia (38:851).

The Center for Disease Control in Atlanta, Georgia reported in January 1976 that lice are more common in the USA today than at any time since World War II.

Dr. Juranek said this statement is based on the number of inquiries by school nurses, and local and state health departments. Since parasitic infestations are not reportable, the Center for Disease Control has investigated several recent outbreaks of lice in schools and found "that the prevalence of infestation ranged from three (3%) to twenty (20%) percent (51)."

The question now arises why do we continue to find pediculosis amongst the population in the USA? Generally our living and sanitary standards are amongst the highest in the world.
Dr. A. Bernard Ackerman, a dermatologist at the Miami School of Medicine attempted to answer this question. He equates the increase in pediculosis (and scabies) with the rising incidence of venereal diseases. He pinpoints changing moral standards and greater sexual freedom coupled with communal living and longer hair styles, in both sexes, as one major reason for the increase in pediculosis. He continued:

Poverty, poor hygiene and crowded living conditions, however, undoubtedly remain the prime source of infestation, along with special demographic situations that breed them, such as migrant labor. The American urge and ability to travel far and wide also contributes to their spread (25:45-6).

Shenone noted that there exists a direct relationship between hair length and louse infestation. The incidence rate in women as a rule is greater than that of men. This difference, he added, is diminishing with the changing hair styles (42:31-33).

**Diagnosis and Treatment**

The presence of live nits are frequently the only obvious sign of pediculosis infection. On the other hand skin irritation caused by the insect's continuous sucking of blood and simultaneous injecting of saliva under skin, will cause a victim to scratch resulting in secondary bacterial infection, even general dermatitis (18:430-31). Swollen lymph glands can be noted in severe infestations (25:46). Severe dermal hypersensitivity and bronzed
pigmentation of the skin, known as Vagabond's Disease may be the result of repeated infestations (20:649). By far the most serious complication of pediculosis is louse-born typhus, relapsing fever and trench fever. Generally these are attributed to the body louse. Many authors though feel that capitus is not an innocent bystander, especially since it can interbreed with the other races (3:809, 5:793, 24:173).

Treatment of pediculosis should be aimed at interrupting the vicious cycle of egg laying and hatching. The most effective and simplest treatment for pediculosis is the application of Gamma Benzene Hexachloride, a pediculicide marketed under the trade name of Kwell (46:566). Unfortunately, reports of lice resistance to DDT and DDT derivatives are appearing and are a concern to the World Health Organization (56:211-220, 11:186, 39:453).

Prevention

It is not enough to remove the parasite and the eggs. All articles used by the infected person have to be decontaminated, the source of the infestation has to be removed, and the conditions that predispose to the disease have to be ameliorated. "The best way to control human lice," said Keh, "is to prevent them from becoming established in an area by seeing that the people are educated and are living in a sanitary environment" (52:28). "The aim is to push back the level of detection and intervention
to the precursors and risk factors of disease," said Mausner. "This lays the emphasis squarely on preventative rather than curative medicine." He defined prevention in this context as "... inhibiting the development of a disease before it occurs" (13:9).

In order to adequately prevent and control communicable diseases, according to Mausner, it is necessary to investigate both the "host factor" and "factors in the environment" for "the interaction of these two sets of factors determine whether or not a disease develops" (13:28).

Host or intrinsic factors are concerned with immunity and genetic endowment. Extrinsic or environment factors can be classified as biological, social and physical environment. Any disease causing or transmitting agent, plant, animal, bacteria is included in the biological environment. Social status, customs and beliefs are attributed to social environment and must be evaluated in any epidemiological investigation. Housing, sanitation, population density are all parts of the physical environment. The occurrence of any disease, therefore, must be considered as a result of the interrelationship of all of these factors (13:28-40).

Craig and Faust agreed that parasitic diseases are indications of environmental conditions. They outlined the following steps necessary to effectively control parasitic diseases in the population.
1. The detection, accurate diagnosis and evaluation of the disease in the patient; 2. adequate treatment of the patient; 3. search for, and treatment of other cases in the patient's family; 4. determination, if possible, of the source of the infection; 5. advice to patients and their families as to how they can avoid further exposure; 6. support and cooperation in community preventive measures, and 7. education of patients in ways of utilizing and strengthening local health departments (5:64).

A study from Nigeria reports that the death rate of parasitic and infectious diseases has increased 1.3% during the one year period 1967-68. It was felt that these diseases could all be prevented with improved public health measures. The research team was aware that it would be difficult to initiate the necessary changes because they often "... ran counter to strongly embedded cultural norms and individual behavior patterns" (37:1).

Health Education

Public education in methods of identification, control, and treatment of communicable diseases is essential for the success of any prevention program.

Health education programs were carried out in two villages, well matched in socio-cultural factors. The aim in one village was to teach the individual preventative health measures, while in the other village an attempt was made to educate the large groups within the community.

It was found that the group approach was more successful in influencing the villagers to make the
necessary changes for effective disease prevention and control (37:1-14).

Hopper reported on a community program in British Columbia where 11.5% of the student population was infested with live nits. Public health nurses prescribed treatment and inspected 2,000 pupils bi-weekly without reduction in the number of cases. After 6 weeks of unsuccessful effort, the community was asked for volunteers and response was good. These volunteers, both men and women, were instructed in the examination of children's heads. Each volunteer was assigned to one (1) classroom and asked to inspect daily each child. Children with nits or suspected of having nits were referred to the public health or school nurse, who would then do the necessary follow-up. Within 6 weeks after the commencement of the program, the incidence rate of pediculosis, in that particular school population, had fallen to 0.06% (35:160).

During an address to the School Health Conference in June, 1975, Crowder reported high incidence of intestinal parasites in school age children and stated that there is a paucity of health programs and surveys in that particular area. She stated:

Three decades ago, parasitic infestations were prevalent infection in our country; however, with the improvement and control of solid waste, provision for safe drinking water, with health education promoting individual personal hygiene and sanitation, our awareness about these diseases has declined and surveillance therefore has become negligible (30:346).
Crowder suggested that once again we must focus our attention to age-old problems that are contributing to unhealthy living. She named crowded living conditions, inadequate housing, poverty, carpeting in schools, and children, not yet trained in hygiene practices, as factors in the rise of incidence of all types of parasites, including pediculosis. She recommended that we return to the abandoned practice of inspecting school children for cleanliness. She outlined a program for health professionals to be involved in solving the parasite problem. Her plan included the following four steps:

1. To become aware of the existence of parasitic infestation.
2. To look at individual school programs.
3. To establish a need and make a plan of action.
4. To follow up.

Under follow up, she recommended that local health agencies and the schools become involved. She sees a need for hygiene education for students and their families (15:346-8).

McInnes agreed that prevention of communicable diseases is the responsibility of every citizen, but lamented "... as an epidemic of disease passed, most of the regulations passed with it were forgotten until the next epidemic occurred" (15:20). In order to assume the responsibility of disease control, the public has to be educated. McInnes warned: "It is useless to exclude a child from
school because of a suspicious communicable disease unless the parents understand the importance of caring for the child and the need to protect other children" (15:36).

Crowder described a school program conducted in Texas for the identification, treatment and follow up of intestinal parasites. Public health personnel, school officials and nurses, as well as parents were involved. Both the community and the schools became "worm" oriented. All were able to freely discuss intestinal parasites, their symptoms and their treatment. She concluded with these remarks:

There should be a challenge to be aware of parasitic infestation in the school community, a resolve to take positive action to identify children with infestation and a determination to be aggressive in developing a plan of action. A record of rates of morbidity should be kept and reported to the local or state health department (15:348).

Sinacore reiterated the need for health education because of the prevalence of parasitic infestation amongst pre-school and school age children:

At the elementary level, we are dealing with such a high incidence group that stress must be placed on the personal hygiene practices that must be followed if the spread of the infection is to be controlled. The education program could be carried out by elementary teachers trained to do so and/or school nurse teachers or public health nurses. In-service programs need to be conducted for elementary teachers with regard to this health problem and each must be provided with what teaching materials are available to assist her with her task. These teacher preparation programs can be carried out by school nurse teachers, public health nurses or health education coordinators in cooperation with other community health personnel (44:349).
Such a screening program was conducted by the University of Malasia for children age 6-7 years entering elementary school. The children came from varied ethnic background and the majority belonged to the lower economic class. The most frequently observed health deficits were associated with poor nutrition, and diseases due to low hygiene standards, scabies, impetigo and pediculosis amongst them. It was felt that in order to improve the health status of this population, intensive screening and preventative programs should be available. As a result, the University of Malaya developed educational courses for medical students and health workers. The objective was to organize health services and programs for teachers, parents and pupils (29:269-74).

Haag noted during a survey in Central Texas that elementary school teachers were not cognizant of their pupil's health problems. She observed amongst the children signs of health deficits ranging from visual and hearing problems to communicable diseases, including lice. She concluded there was a deplorable lack of health education in the teacher training in institutions, and consequently in the elementary classrooms (34:371-3).

When he surveyed health education in New York City's elementary schools, Fine observed that the quality and quantity of health education differed with the teacher's skill and knowledge of the subject. He found that generally
the topic of health had a low priority in the minds of many teachers and varied with the perception of existing health problems. He concluded that teacher's confidence and competence can be improved with more in depth knowledge of the subject matter (32:165-71).

Newman reported from South Carolina that the communities look to the schools for the solution of health problems related to youth. It is, therefore, the school's responsibility, he felt, to develop programs that meet the interests and needs of the students (36).

Mayshark had no doubt about the school's responsibility in regard to health problems, specifically communicable diseases. "The school remains a safe place for students who are well," he wrote, "only when those who are ill are promptly identified and are separated immediately from the others." He advocated that the classroom teacher should be familiar with the most obvious signs of these diseases, be able to detect them amongst their pupils and have the information to "... help students gain an understanding of communicable diseases as well as show them ways to prevent and control these diseases" (14:222).

Workshops for Teachers

In order to keep abreast of the explosion in health knowledge and the continually changing health issues, Mayshark recommended workshops for teachers. Such workshops, he felt, should be flexible and provide information and
material the teacher can readily adapt for classroom utilization (14:277-8).

Tyler reported on an eight year study that workshops "... were a primary instrument for in-service education for teachers" (22:12). He explained that teachers who are constructively involved in solving real educational problems are motivated to participate in continuing in-service education (22:13).

Tyler further noted that changes within society create pressure for the school system to adapt their curriculum to reflect the issues that are the consequences of such changes. This task is a continuous challenge to the school system and "... will generate new problems to be dealt with in in-service education" (22:14).

Jackson also emphasized the necessity for in-service education, not only because of changes in the environment and in the student population, but also because of the teacher's personal growth. He stressed the teacher should have a choice of program content for "... he is not a helpless learner, and his own perception of what will enable him to function more effectively may serve as our most intelligent point of departure" (22:35). Jackson further stressed that problems dearth with in any in-service program should have a relationship to those encountered in the classroom.

Benell described a successful workshop to overcome teacher reluctance to instruct on sensitive health issues,
in this case, venereal diseases. She showed how this hesitancy was overcome by changing preconceived ideas, e.g., students who have VD only come from deprived homes or from slum areas (27:84).

During the workshop, it was demonstrated to the participants that one's own attitude and values in addition to lack of knowledge about VD created a feeling of insecurity in the discussion of the topic. It was brought out that an understanding of the scientific fundamentals of the disease placed it on par with other communicable diseases that are being taught in grades K-12. Teachers were shown how this new approach to VD education can place them in a better position to "... give assistance, empathy and understanding to their students" (27:85).

California has recognized the need to assist the schools in upgrading the health curriculum. In 1970, The Framework for Health Instruction in California Public Schools was adapted. Dr. Rafferty, the State Superinten- dent of Schools at that time, recommended that this guide should be utilized:

... as a basis for developing a planned sequential health instruction program; that is (1) related to current and emerging health problems and (2) designed to develop critical thinking and individual responsibility in regard to health.

He recommended that school districts provide in-service education courses to aid teachers "... in implementing such a program" (48:111).
Friedman noted that teachers are in an ideal position to transmit health information "... on a level that will influence a child's behavior." They can motivate, follow up, reinforce, and so aid in disease prevention. He felt workshops would be an ideal opportunity for faculty training (33:140).

Reeves added, in order for a workshop to be relevant, it has to allow for growth and be conducted in a way that teachers need not be concerned about mistakes or damage to their reputations (40:542). Ernest concurred with Tyler that a successful workshop must be concerned with "... day by day problems which constantly confront people" (31:498). Both Ryan and Snow remarked that by working with teachers, it is possible to reach a far greater number of children than by seeing each child on a one to one basis (41:130, 45:432).

For a workshop to be successful, one must consider the learner and the process of instruction, said Friesen. In regard to the learner, he suggested, one consider relevancy, realism, climate and informality. In the discussion of the process, he agreed with Reeves that it is essential to know the starting point, to state goals, the method to achieve these goals, and, finally evaluate if they have been achieved. Friesen emphasized instructions had to be sequential with appropriate pauses for questions, reinforcements, consolidation and evaluation (7:39-40).
Ryan elaborated on Mayshark's (14) concept of a successful workshop. He warned the agenda should neither be too rigid, for that may encounter resistance, nor so loose that it will produce anxiety. His solution was a "menu," thus offering the participants a choice of some or all items on the program. This approach allows for involvement in the decision making process without the frustration of having to cope with an unlimited amount of subjects. Ryan described the workshop leader as a "... facilitator of communication" (41:432), who helps the group to draw on their own area of expertise and exchange ideas. His final recommendations were that the leader should never lose sight of the topic under discussion and always be able to bring the group back to the main issue (41:431-2).

Summary

The literature was researched for biological data, for causes, and for methods of treatment and prevention of pediculosis. It was found that head lice have always been, and still are, prevalent amongst the population. In the past, the existence of lice infestation has been ascribed to poverty, poor hygiene practices, and crowded living conditions. Through the ages, lice and louse-borne diseases have been the steady companions of soldiers at war.

Current incidence of lice infestation, of public school children, have been reported from both the under-
developed countries of the world and from the USA. Public health officials have warned that this latest surge in pediculosis has occurred without regard to economic barriers. Changing moral standards, coupled with communal living and longer hair styles, in both sexes, as well as a large migrant population, are thought to be the reasons for the increase in the disease.

The presence of live nits was described as the major symptom of lice infestation. Itching of the scalp, caused by the insect's continuous sucking of blood, was another symptom. Secondary dermatitis and enlargement of the cervical glands were reported to be complications of pediculosis.

For treatment, the use of a pediculicide has been unanimously recommended. Decontamination of all articles used by the infested person and examination of all known contacts for pediculosis was strongly advised.

A major part of the literature research was concerned with the prevention of pediculosis. Many authors implied that communities look to the schools for the solution of health problems related to youth. They noted that when the resources of the public at large, the public health agencies, and the schools were pooled, effective control and prevention of communicable diseases, including pediculosis, was attained.
Many writers commented on the lack of health education courses in teacher training institutions and, consequently, in the elementary schools of this nation. To remedy this situation, workshops for teachers were advocated. Such workshops could serve as a vehicle to provide current and relevant health information that teachers could readily convert for use in the classroom.

Finally, successful in-service programs on current health problems were reviewed. They were examined for possible adaptation to a teacher education program in pediculosis control and prevention.
Chapter 3

RESEARCH METHODS AND PROCEDURES

Surveys

During the preliminary planning stages of this project, it became apparent that no official statistics on pediculosis were available. Therefore, it was decided to establish through this study how widespread pediculosis in school children actually was:

1. in neighboring elementary schools
2. in other Southern California school districts.

For this purpose, questionnaires were handed out to fifteen school nurses, working in the same Los Angeles area as the one where the project was to be conducted. The nurses were asked to estimate the number of cases of pediculosis, in increments of twenty-five, in their schools and to indicate at which grade level louse infestation was most prevalent. They were further asked to state the total enrollment for their respective schools. They were assured that at no time will any school be mentioned by name (see Appendix A).

Three-fourths of the questionnaires were returned. All respondents agreed pediculosis was a health hazard in their schools. When the data was compiled, it became
obvious that there exists a direct relationship between increased number of infested children and greater school enrollment (see Table 1).

Table 1

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Cases 0-25</th>
<th>Cases 26-50</th>
<th>Cases 51-75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-500</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>501 and up</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Nurses reported that pediculosis was most prevalent in grades K-3. One nurse, however, found the greatest number of cases in grades 4-6, while another nurse reported that children at all grade levels were equally infested (see Table 2).

Table 2

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Cases 0-25</th>
<th>Cases 26-50</th>
<th>Cases 51-75</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-3</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4-6</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Following the return of these questionnaires, nurses were asked what methods were used to identify louse
infested children, and if any organized pediculosis control program existed in their respective schools.

Nurses working in the Los Angeles schools reported that most children were diagnosed incidentally when sent to the health office for other, unrelated conditions. In these cases, the infestation was usually well established, for live nits were seen readily. Occasionally, children were referred to the school nurse by the classroom teacher who had observed white specks on the child’s hair.

Once the diagnosis of pediculosis had been made, siblings attending the same school and children in the same classroom as the infested pupil were examined. At none of the schools, was an organized control program in force. It must be pointed out that there is frequently a considerable time lag between the initial diagnosis of one case of pediculosis and the follow up of all contacts.

At the same time as information on pediculosis in specific elementary schools of Los Angeles was being compiled, letters were sent to nursing coordinators of seven Southern California school districts. Information was requested pertaining to the diagnosis, the treatment and the control of pediculosis amongst the elementary school population in their respective districts. Statistics, if available, were also asked for.

Four out of the five coordinators, who replied to the inquiry, reported that:
1. Between 2.22% and 3.35% of the students were infested with head lice.

2. Students found to have pediculosis were excluded from school. Lice infested students were referred to their private doctor or the local Health Department for treatment.

3. All siblings and contacts of infested students were examined by the school nurse, and they and their parents counseled on methods of prevention.

In addition, nurses in one school district were allowed to dispense a pediculicide to families of infested children. In another district, the coordinator reported, children in selected classrooms were examined regularly by the school nurses. These nurses presented the film strip, Louie the Louse to part of the student body and faculty, as well as to some pre-school parents and to PTA members.

The fifth coordinator wrote that pediculosis was not a problem in her school district.

Concurrently with the above mentioned surveys, letters were sent to the manufacturers of the most widely used pediculicides requesting literature for use in the workshop and for statistics. Posters, pamphlets and free samples were graciously supplied by these firms. Statistics again were not available.

Requests for statistics and literature were also mailed to The Department of Public Health in Berkeley,
California, the Department of Health, Education and Welfare in Bethesda, Maryland, the World Health Organization and the Center for Disease Control in Atlanta, Georgia. The Los Angeles City and County Health Departments were visited in person. None of these agencies had statistics on pediculosis, but all, except WHO, provided information and literature that was useful for the purpose of this project.

The Project School

A preliminary estimate of pediculosis for the same time span at the project school, located in the inner city of Los Angeles, was set between 3%-4%. The incidence rate was highest amongst the younger children.

According to the 1974-75 Title I application, the average yearly income in the community, where the school is located, was $9,095.00. The total enrollment at the school was 960 pupils with a 47% transiency rate. Seventy-six percent of the children had Spanish surnames, 1% were Black, 11% Asian, 11% other and 1% American Indian. At the beginning of the school year, 219 of the children were enrolled in classes of English for Speakers of Other Languages. Students had been assigned to their classes at random at the time of registration.

The reports from the nursing coordinators of the five Southern California School districts, the results of the questionnaires from the school nurses in Los Angeles, and the data from the project school confirmed that
Pediculosis was indeed prevalent amongst school children. Primary grade students were found to be the population at greatest risk. These data served as a justification to proceed with plans to prepare a workshop for primary grade teachers. The workshop outline was designed to impart adequate and accurate information to the faculty so they would be able to:

1. Examine children for pediculosis
2. Refer infested children to the school nurse
3. Discuss pediculosis without embarrassment
4. Instruct students in methods of pediculosis control and prevention.

The principal of the school was informed of the project. He showed great interest and thought an organized program of lice control would be a great improvement over the current procedure of examining children for pediculosis once a semester. He received the curriculum for the workshop, its specific goals and objectives. He approved the implementation of the program without hesitation.

The Target Population

On May 28, 1975, a notice was posted in the faculty room of the school to inform the staff of a seminar on pediculosis to be held in September, prior to the start of the 1975-76 school year. Anyone teaching grades K-3, and interested in such a program was asked to sign up and indicate their preference as to time and date. It was made
clear that no salary points were available and that teachers might be asked to inspect children's heads for nits for a three week period at the beginning of the Fall semester (see Appendix B).

The staff responded enthusiastically to the idea of learning more about a health problem that they faced daily in the classroom. Several faculty members expressed disappointment that the workshop would be held at a time when they could not conveniently attend.

One kindergarten teacher, four first grade teachers and three third grade teachers volunteered for the workshop. During a pre-planning session in the nurse's office, one week later, it became apparent that not one of the eight staff members had had a single course in health education during their college years. The kindergarten teacher had recently participated in two in-service training programs in motor coordination. One of the first grade teachers had had a two unit general health course in her junior college year, another had taken a physical education course in lieu of health, also in her junior year. A third had attended one class in family health, dealing with marriage and sex education, and the fourth teacher had participated in a Red Cross class for her first aid certificate. Two of the first grade teachers remembered having taken a general health class during their sophomore year, but did not remember the content. The third, who had previously been
a social worker, had several courses in medical social work.

Choosing the Topics for the Workshop

Everyone present at this meeting agreed that there was a great need to upgrade the general health knowledge of the staff in relation to health problems observed in the classroom. The above data reinforced this need and served to justify a program of health education. Since pediculosis was one of many urgent health problems, a workshop dealing with the various aspects of this condition was felt to be a good beginning. At the conclusion of the meeting, members were asked to think about topics they would like to have developed for the workshop on pediculosis.

On Thursday of this same week, the author consulted with Dr. June Gorsky, specialist in curriculum planning, to present a workshop outline and to submit a tentative list of topics to be discussed. These were approved.

The topics were specifically chosen to:

1. Assist in the implementation of the workshop outline

2. Provide a greater understanding of the problems families face whose children were found to have pediculosis

3. Supply sufficient information to effectively and intelligently combat pediculosis.
Two booklets, supplied by the Department of Health, Education and Welfare, on the control of lice, were used to assist with this task.

One week later, a letter was distributed to the prospective workshop members, informing them of the exact date, time and place for the workshop, consistent with the wishes of the majority of prospective participants as tabulated from the questionnaire. The letter included the list of suggested topics related to pediculosis. Teachers were asked to check those items that seemed most pertinent to them and return the list to this researcher within the next few days. The response to this questionnaire served as a guideline during the following weeks when the details for the workshop agenda was developed (see Appendix C).

Table 3 clearly indicates that all members of the faculty were interested to learn how pediculosis is spread and how it can best be treated. Most members appeared to see a relationship between identification of nits, resource material, treatment and prevention guidelines, but only half of the respondents felt that the biology of the louse or the environmental aspects of the home were important factors connected with either treatment or prevention of pediculosis. Not one person seemed to realize that it was essential to understand the needs, problems and conditions within the community for health education to be effective.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life cycle of the head louse</td>
<td>4</td>
</tr>
<tr>
<td>Mode of infection</td>
<td>8</td>
</tr>
<tr>
<td>Identification of nits</td>
<td>6</td>
</tr>
<tr>
<td>Prevention guidelines</td>
<td>6</td>
</tr>
<tr>
<td>Social implications of pediculosis</td>
<td>-</td>
</tr>
<tr>
<td>Sociological considerations</td>
<td>-</td>
</tr>
<tr>
<td>Environmental aspects</td>
<td>5</td>
</tr>
<tr>
<td>Treatment</td>
<td>8</td>
</tr>
<tr>
<td>Resource material</td>
<td>6</td>
</tr>
</tbody>
</table>

Initially, the purpose of the questionnaire was to obtain input from the workshop participants. Incidentally, it served another function. These answers illuminated those areas where the greatest lack of health information in relation to pediculosis existed: (1) the cause of louse infestation in school children and (2) ways to approach the problem without inflecting damage to the self esteem of the child and that of his family.

To clarify these points, another meeting for all workshop participants was called for the last Wednesday of the 1974-75 school year. The results of that latest questionnaire were discussed. The need to include sociological implications and considerations was brought out. The staff explained that they had not considered these topics from
this point of view and agreed to include them on the agenda. The way was now cleared for the workshop curriculum to be developed as originally planned.

At the conclusion of this last meeting each person was asked to take five minutes and complete the semantic differential scale grid. This grid was used as a pre-test (see Appendix H). There was considerable confusion over the terms, strong and weak, originally used for rating the choices. They were substituted with the words for and against.

**Developing the Curriculum**

Consistent with this author's readings on pediculosis, in-service education, workshop construction, curriculum development and the review of Fodor and Dalis' *Health Instruction Theory and Application* (6), each topic was carefully researched and developed. Measureable objectives were formulated with a content and a behavioral dimension, learning opportunities were selected or constructed to stress salient points.

For quite some time, this writer had been concerned with the varied reactions, all of them negative, that the subject of pediculosis produced. Some people expressed their disdain openly, others showed their feelings through uncomplimentary expressions. Almost everyone who had been engaged in any kind of dialogue about head lice, sooner or
later, admitted they felt an irresistible urge to scratch their heads.

Hochbaum said "Our health behavior is the result of the interaction between the rational and the irrational, though at times, one or the other may play the more decisive role." He felt that the acquisition of accurate and adequate health information is the best prescription for rational health behavior (10:33). Congruent with these observations, the part of the curriculum concerned with attitudes and values was formulated.

One of the stated objectives of the project was that teachers would be able to examine children's hair and to discuss pediculosis in the classroom. This author hoped that with increased awareness of their own feelings and values, as well as with a gain in knowledge about pediculosis, the staff would eventually view the louse as a small animal that could readily be rendered harmless.

The semantic differential scale as well as all the other learning opportunities were planned with this purpose in mind. Dalis' value clarification grid was intended to assist the staff to reflect on their own feelings and values regarding sensitive and controversial topics, and to provide an opportunity for an exchange of ideas amongst workshop members.

The nit identification activities were purposely arranged so teachers would slowly become accustomed to touching hair containing nits, without showing signs of
fear or repulsion. Role playing was intended as another practice in valuing techniques, such as open ended discussion and identifying behavior of students and their parents. Another purpose of this activity was to give workshop members the opportunity to solve problems they might actually face when confronting pediculosis in their classroom or when they come face to face with an angry parent.

To stress the point of view of looking at the whole child, the film *Looking at Children* was selected. When checking children for head lice, teachers could be able to identify a variety of other health problems, provided they are familiar with them. This film, apart from describing the obvious diagnostic signs of the most frequent health deficits seen in the classroom, stresses that learning is only possible when children feel well. The message was that an observant, responsive teacher would be in an ideal position to note significant changes in a child's health long before anyone else has become aware of a problem.

To explain a step by step treatment routine for pediculosis, *Louie the Louse*, a film strip, was chosen. This amusing, 10 minute musical production is appropriate for classroom presentation. Information on ordering the film strip was included in the resource material package of all participants.
Evaluation Instruments

Evaluation of the workshop was to be carried out at three different levels:

1. To facilitate the evaluation of attitude change, the semantic differential scale was prepared as a pre- and post-test. All items were designed to agree with those course objectives concerned with the ability of the staff to examine children for pediculosis and to teach the prevention and control of this disease.

2. An open book knowledge test on all workshop topics was designed by the author. This paper and pencil test was constructed to correspond with the complete course content and all objectives. The primary purpose of this test was for workshop participants to review the material and gain from the experience. It was meant to be an instructional rather than an evaluative tool.

3. A program evaluation instrument was developed. The purpose was to reveal the strength and weaknesses of the workshop and bring to the attention of the instructor those areas that need revision before future presentations (see Appendix D).

Summary

Surveys were conducted to assess the prevalence of pediculosis and the existence of organized preventive and control programs within the various Southern California school districts. A need for in-service training in
pediculosis was established and an experimental workshop was prepared for primary grade teachers to acquaint them with the problem of pediculosis and to instruct them in methods of identifying the condition and referring infected children to the school nurse. A resource material package was prepared for workshop members, containing information and materials to facilitate health education in pediculosis prevention and control in the classroom.

Evaluative instruments were designed to correspond with the content and objectives of the workshop and to assess the immediate and the long range effectiveness of the project.
Chapter 4

THE WORKSHOP

The workshop was developed under the broad concept that head lice are a communicable disease and can be controlled like other endemic diseases. The overall objective was that teachers would be able to instruct about the prevention of head lice and that they will be able to carry out routine head inspection and referral of infected children.

Workshop Outline

A one day workshop was held on September 3, 1975. The agenda can be found in Appendix D. The workshop outline was divided into ten main topics. Each was time sequenced as follows.

10:00 a.m. Introduction and Workshop Objectives
10:30 a.m. Life Cycle and Treatment of the Head Louse
11:00 a.m. Forced Choice of Values
11:30 a.m. Film
12 noon Lunch
1:00 p.m. Mode of Infection
1:15 p.m. Identification Activities
1:45 p.m. Prevention
2:00 p.m. Role Playing
2:15 p.m. Resource Material
2:30 p.m. Questionnaire and Evaluation

Introduction and workshop objectives. The introduction served to give workshop members an overview of the program, state the objectives, and stress the public health concept of prevention. This point of view is consistent with the trend in modern medicine that places the emphasis on prevention of diseases. Programs in this area have been very successful in eradicating many communicable diseases. Pediculosis, it was pointed out, falls under this classification.

Life cycle and steps of treatment. The louse as a vector of diseases, the biology of the parasite, and the steps of treatment and prevention were dealt with during the next section of the workshop. There were many questions on all of these topics by members of the workshop. Transparencies for overhead projection were used to review the material and to define biological terms (see Appendix E).

Forced choice of values. Dalis' (49) forced choice of values gave the group an opportunity to reflect on their own feelings regarding sensitive and controversial topics. The members were asked to divide into three groups and rank a list of twelve statements in order of personal priorities.
The rating scale was from one to twelve; one meaning, I feel very strongly about this topic and twelve, I view this subject as unimportant (refer to Appendix F). There was agreement on the rank of some items and considerable disagreement on others. The objective of this activity was to show that everyone has different values depending on individual background and life style. At the conclusion of this activity, a comparison was made to pediculosis. It was pointed out that nits in a child's hair may be a source of concern to the school and to some parents, while other families may consider pediculosis to be unimportant.

Film. The film Looking at Children was shown and well received. It described a variety of health problems seen in the classroom, including pediculosis and skin conditions such as scabies, ringworm and impetigo, diseases that teachers usually do not recognize as being communicable.

Mode of infection. Beginning with the topic of transmission of pediculosis, teachers' concern over becoming infested with pediculosis surfaced. It was explained that the danger of acquiring any communicable disease is greatest when a person is not aware of the presence of that disease. However, once one is cognizant of the prevalence of any condition, preventative measures and precautions can be taken to safeguard oneself and others from getting the disease. For instance, a person can contract pediculosis
inadvertently from the upholstery in planes, trains and movie houses or when buying a hat at an open air market, but under controlled classroom conditions, no careful examiner need become infested.

**Identification activities.** During this part of the workshop, teachers had the opportunity to view nits before and after treatment and to touch infested hair. It took considerable time to overcome the reluctance of some members to handle the hair strands, even though it was explained that the nits were no longer viable three months after removal from an infested child.

To demonstrate the correct method of examining children for lice without touching the hair, a wig was used. Someone inquired about the possibility of wearing gloves when inspecting heads. It was pointed out that one of the implied goals of the workshop was to counteract negative responses to pediculosis. Therefore, it was felt, that the wearing of gloves was not advisable.

Observing that considerable resistance to examining children's hair still existed, additional time was spent on exploring this important topic. With the statement: "You still seem not to be at ease with the thought of examining children's hair," a discussion was initiated. Members expressed freely their fears and feelings about classroom head inspection. Eventually, all questions were answered
and most apprehensions resolved, and the staff felt they could try to examine children's hair.

Prevention. The section on prevention was helpful in dispelling any remaining fears about pediculosis. Participants discussed amongst themselves how best to teach about lice. It was pointed out that guidelines were forthcoming (see Appendix G). It was suggested that the head inspection in the classroom could serve as an ideal introduction to teaching basic communicable disease control.

Role playing. Role playing was intended to give the staff the practical experience of exploring a variety of problems they might face when examining their classes for pediculosis and when actually finding nits in the children's hair. Those members who felt they were ready for this activity were asked to volunteer. One teacher, whose children had contracted lice at school, and another who had caught scabies at the project school, were the first to come forward. Four others followed, but two members did not wish to participate. Clue cards were handed out. The dialogue that developed was very realistic and, to their surprise, participants found they really could talk about pediculosis much freer than they had expected. Some unscheduled debate on how best to refer children to the health office for confirmation of pediculosis ensued.
Resource material. As a summary to the workshop, a resource material package was distributed and the film strip *Louie the Louse* was shown. Everyone agreed it was no disgrace to have lice, but it was to keep them.

Workshop evaluation. Before embarking on this final phase of the workshop, this author informed the staff that part of the evaluation was an open book test, and was intended to be a review of the material. The remainder was to serve as an evaluation of the workshop procedures and content. No member was to be identified by name. Participants were asked to complete every page of the evaluation instrument. Lastly, they were reminded that this researcher would like all members to examine the children in their classrooms for the first three weeks of the new semester. The complete evaluation instrument can be found in Appendix H.

The semantic differential scale was used as a pre- and post-test of teacher's attitude change in relation to examining children for head lice and to the classroom discussion of pediculosis. Six questions were to be rated on a scale of one to five; one meaning I am for this activity, five meaning I am against it (see Appendix I). The lowest possible score on all questions was six points and was interpreted as a positive attitude toward these tasks and the highest score of a total of forty points, as a negative attitude (refer to Table 4).
Table 4

Pre- and Post Test Scores on the Semantic Differential Scale

Legend:  --- Pre-test
-------- Post-test

The graph represents the shift in attitude of the total group towards teaching about pediculosis and examining children for head lice.

Numbers on the ordinate represent total points of group for each activity.

Numbers on the abscissa represent the number given to each question.
Table 4 represents the shift in attitude of the total group towards teaching about head lice and examining children for pediculosis. The response of all members to each question, on both the pre- and post-tests were tabulated separately and the results plotted on a graph. The broken line indicates the pre-test and the solid line the post-test. The chart clearly shows that teachers from the outset, had very little reservation about close contact with children (Question 1), that there was a moderate amount of reluctance to discussing pediculosis in the classroom (Question 2), and to touching children's hair (Question 3). However, the most negative feelings amongst the group, both before and after the workshop, existed in the area of examining children for pediculosis (Question 4), touching infested hair (Question 5) and fear of contracting pediculosis (Question 6). At the same time, the greatest positive shifts occurred in those very same areas.

Since questions number 2, 4, 5 and 6, were related to the overall objectives of examining children for lice and to teaching about pediculosis, this researcher felt this change in attitude was important.

The review of knowledge test covered the complete content of the workshop and was weighted in the following manner:

I. Multiple choice (2 points each)
II. True and false (1 point each)
III. Fill in questions (1 point each)

IV. Short answers (5 points each)

Sections I-III presented very few problems to the staff. No member missed more than three answers. Section IV, concerned with nit identification in the classroom and parent counseling, was the more challenging part of the test. Every participant missed at least one out of the six questions and some members part of another. Question number 3, concerned with referring infested children, did not receive the anticipated response from one single person. When no one indicated they would do more than refer infested children to the nurse, this author realized that she had omitted to state that three actions were desirable and no points were taken off.

The maximum number of possible points on the written test was 72, calculated to equal 100%. Individual scores ranged between 88% and 93%. This was an indication that the workshop content had been understood.

According to the workshop evaluation forms, all participants felt they could openly talk to their pupils about pediculosis and they had acquired sufficient information to examine children for head lice. The staff liked the workshop as it was presented. Only one person still thought classroom discussion of pediculosis could be somewhat embarrassing.
Project Evaluation

In addition to feedback on the workshop itself, the author hoped to determine the effects, if any, that the workshop had on the study group in respect to the correct referral of lice infested students and on the identification of other health problems. The number of referrals were tabulated and compared with the number of referrals, of identical cases, by all other primary grade teachers. These observations were carried out during the first three weeks of the 1975-76 school year. Beginning September 15, workshop members began a weekly head check on all of their pupils.

Only one member declined to take part in the experiment. She said she had learned much during the workshop, and she would be more observant of health problems amongst her students in the future, but a tight time schedule prevented her from examining the children for head lice.

The remaining workshop members referred a total of 17 children to the health office during the three week period. One of the pupils had dandruff, two others had dead nits in their hair indicating that they already had been treated with a pediculocide. As was explained during the seminar, it frequently is impossible to differentiate with the naked eye between live and dead nits. Workshop members referred three additional students infested with impetigo and one with scabies to the school nurse.
When this investigator re-examined the classes of the workshop participants, no additional cases of pediculosis were found. The final tally showed that out of 245 students, 14 or 5.7% were infested with head lice and all had been identified and referred by those teachers who had taken the workshop.

Observations on the referral practices of all other primary grade teachers showed that no children having pediculosis were identified, nor referred to the health office by teachers of this group. When this author inspected their classrooms, during the same period, 13 or 5.3% of the children had head lice. Four students were found to have impetigo.

Additional Data

Six months after attending the workshop, four of the members were still examining their students regularly for pediculosis and reported the children remind them lest they forget. Apparently, the students enjoyed the extra attention from their teacher. It was also found that workshop participants recognized and referred more students for health related problems than the non-participants. Two of the former have included lessons on pediculosis during units on health. Two have used the microscope to let children see live nits, and one has shown the film strip Louie the Louse to the class at the beginning of the semester.
Chapter 5

SUMMARY

The Problem

Head lice in school children was found to be a source of constant concern to school staff, to public health personnel and to parents. Since pediculosis is not a reportable communicable disease, statistics were unavailable. In order to establish how widespread louse infestation in school children was, questionnaires were sent to nurses in nine Los Angeles inner city schools and to seven Southern California school districts. Data were collected at the project school also located in the inner city of Los Angeles.

Surveys

Surveys were conducted and the literature researched to determine the need for developing a plan to reduce the prevalence of pediculosis through teacher education. This researcher found a paucity of recent information on head lice in the USA. However, pediculosis is described most frequently in articles about the lesser developed countries of the world. This fact may indicate a reluctance to discuss this delicate subject for the same
reasons one has avoided, in the past, to talk about venereal diseases and mental illness.

It was also found that there existed a lack of health education in the elementary schools, and that instruction on pediculosis was almost non-existent.

Solution to the Problem

To correct this shortcoming, a workshop was conducted for primary grade teachers, in order to train them in identifying lice infested pupils. The workshop was developed under the broad concept that pediculosis is a communicable disease and can be controlled like other endemic diseases. The overall objective was that teachers would be able to instruct about the prevention of head lice and that the faculty would be able to carry out routine head inspection and refer infested children to the school nurse.

The workshop content was chosen to give the staff a perspective of louse infestation throughout the ages, to acquaint them with the biology of the parasite and to inform them about methods of identification and treatment of lice. Pediculosis was discussed in relation to the physical and social environment of the school age child.

Learning opportunities to facilitate classroom instruction and examination of children's hair were interspersed throughout the workshop. A pre- and post-test was given to measure comprehension of the workshop content. A
program evaluation questionnaire was completed by all participants to rate the material and the instructor.

Workshop Results

It was found that at the beginning of the 1975-76 school year, workshop participants were able to examine the pupils in their classrooms for pediculosis and correctly identify and refer all lice infested children to the school nurse. All other primary grade teachers referred no pupils infested with head lice, even though 5.3% were found to have pediculosis. In addition, the workshop participants taught units on control and prevention of pediculosis.

Finally, the involvement in a pediculosis control program of only a portion of the staff led to the identification of numerous other cases of pediculosis in the project school, because louse infestation frequently occurs in whole family groups and the families in this particular area of Los Angeles are large. The children usually have siblings dispersed throughout many grade levels. This fact alerted this author to many potential cases of pediculosis and caused her to examine immediately not only the siblings, but also their friends and classmates.

Conclusions Derived

This project has demonstrated that it is possible to train interested faculty to check children for pediculosis and that any member of the staff can be instrumental
in the control of head lice before the condition has become rampant in the classroom. Head inspection by teachers can be carried out a a regular basis and does not need to be time consuming. If this procedure is compared with the practice where only the school nurse is responsible for examining the entire school population, it becomes obvious that control of pediculosis can occur more efficiently and at a significantly faster rate when other staff members become involved in the task.

Recommendations for Future Presentation of the Workshop

In order to assure effective pediculosis control, the workshop could be presented to school nurses at staff meetings and to children center personnel. A selected portion of the workshop material could be utilized during programs for education aides, kindergarten parents and the PTA.

By giving the workshop maximum exposure, a considerable part of the community could be made aware of the age old problem of pediculosis. This awareness could assist in delegating the responsibility for head lice control in elementary school pupils to a greater number of persons involved in the care and education of young children.

To assure greater participation of teachers in the workshop, this author proposes that:
1. The workshop be given during the regular school year or the summer session when more teachers would be able to attend.

2. Salary points for teachers should be made available. The author recognizes this would necessitate at least four more hours of instruction. However, these could be provided in other areas of health education.

3. As an alternative, the workshop could be condensed and presented as part of the hourly inservice programs held regularly in many Los Angeles schools.

4. Or the workshop could be easily divided into four parts and presented during several inservice sessions.
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BIBLIOGRAPHY

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| 51. | Juranek, Dennis D.  Personal Communication.  Center  
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Film and Film Strip


Williams, Tina. Louie the Louse. Available through Nursing Services, Los Angeles School District.
APPENDIX A

INCIDENCE QUESTIONNAIRE
I am conducting a survey on pediculosis in elementary schools and would appreciate some input from you. Would you indicate the estimated number of cases of pediculosis you have seen during this past school year. Even though the name of the school is asked for in this questionnaire, it will not be used for the survey. Schools will only be identified by letters A, B, C, etc.

<table>
<thead>
<tr>
<th>Name of School</th>
<th>0-25</th>
<th>25-50</th>
<th>50-75</th>
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In which grades do you see the most cases:

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<tr>
<th></th>
<th>K-1</th>
<th>2-3</th>
<th>4-5</th>
<th>6</th>
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Total number of students enrolled: ________

Thank you for your assistance.

Sofie Friedman
Logan Street Elementary School
APPENDIX B

WORKSHOP ANNOUNCEMENT
Dear Teacher,

As you know, pediculosis (head-lice) is a cause for concern to the staff and parents of our school. Pediculosis is most prevalent at the beginning of the fall semester, when the children return from their long summer vacation.

This year we would like to try a new approach and involve you, the faculty, in an experimental program, in order to facilitate earlier and better control of head-lice.

An informational program for primary teachers, just prior to the opening of school is planned. If you wish to attend a four hour workshop, giving background information, demonstration and practice in pediculosis control, please sign below and return this letter to me by Tuesday, June 3, 1975.

This workshop is on a voluntary basis. No salary points are available. After participation, you might be asked to examine the children in your classroom for nits, during a six week period.

Please check the appropriate column below for preferred date and time. Lunch or supper will be provided.

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<table>
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<tr>
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<tr>
<td><strong>Wednesday, 9/3/75</strong></td>
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<td>10 a.m. - 3 p.m.</td>
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<td>4 p.m. - 9 p.m.</td>
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<tr>
<td><strong>Thursday, 9/4/75</strong></td>
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<tr>
<td>10 a.m. - 3 p.m.</td>
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<tr>
<td>4 p.m. - 9 p.m.</td>
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</table>

Name:
Room:
Grade Level:
Comments:

Thank you for your cooperation.

Sofie Friedman
Dear

Re: Workshop on Pediculosis Control
Place: Logan Street Library
Date: Wednesday, September 3, 1975
Time: 10 a.m. – 3 p.m.
Lunch: 12 noon – 1 p.m. (provided)

Thank you for your willingness to attend the workshop. Wednesday, 9/3/1975 was the date preferred by most of the participants. I hope, those of you who voted for Thursday will still find it convenient to attend.

A program outline and questionnaire will be mailed to you prior to 9/3/75. Tentative topics are listed below. Please check those subjects that seem most pertinent to you.

- Life cycle of head louse
- Mode of infection and spread
- Identification of nits
- Prevention guidelines
- Social implications of pediculosis
- Sociological considerations
- Environmental aspects
- Treatment
- Resource material on personal hygiene for your grade level
- Further suggestions

Name:
Address:
Telephone:

Have a great summer.

Most sincerely,
APPENDIX D

WORKSHOP OBJECTIVES,
AGENDA AND OUTLINE
Major Concept
Head lice infestation is a communicable disease. It can be controlled like any other endemic disease.

Overall Objectives
1. Teachers will be able to carry out routine head inspections in their classrooms
2. Refer infected children to the school nurse
3. Freely discuss head lice as well as prevention with children and parents.

Specific Objectives
Upon completion of the workshop, teachers can:
1. Inspect children's hair and identify cases of pediculosis
2. Distinguish between dandruff and nits
3. Discuss the subject of head lice without embarrassment
4. Have no fear that they themselves can become infected through contact
5. Discuss pediculosis during units on general hygiene
6. Introduce pediculosis as a communicable disease
7. Discuss the spread of pediculosis
8. Teach prevention of pediculosis.
Agenda for Workshop on Pediculosis

Date: Wednesday, September 3, 1975
Time: 10 a.m. - 3 p.m.
Place: Logan Street Elementary School

10:00 a.m. Introduction and Workshop Objectives
10:30 a.m. Life Cycle and Treatment of the Head Louse
11:00 a.m. Forced Choice of Values
11:30 a.m. Film
12 noon Lunch
1:00 p.m. Mode of Infection
1:15 p.m. Identification Activities
1:45 p.m. Prevention
2:00 p.m. Role Playing
2:15 p.m. Resource Material
2:30 p.m. Questionnaire and Evaluation
Workshop Outline

I. Introduction
   A. Welcome
   B. Preview Course Objectives
   C. Preview Course Agenda (Transparency No. 1)
   D. Reasons for Workshop (Transparency No. 2)
   E. Current Program (Transparency No. 3)
   F. Prevention (Transparency No. 4)
   G. Consequence (Transparency No. 5)
   H. Statistics

II. The Louse (Transparency No. 6)
   A. Historical
      1. Wars Ancient and Modern
      2. Another View of the Louse
      3. DDT
      4. WHO
      5. Peace Corps, Vietnam
   B. Biology
      1. Insect (Transparency No. 7)
      2. Nit (Transparency No. 8)
      3. Life Cycle (Transparency No. 9)
   C. Treatment
      1. Differential Diagnoses (Transparency No. 10)
      2. Steps of Treatment
      3. Prevention

*Transparency masters can be found in Appendix E.
III. Forced Choice of Values
   A. How Do You Feel About (Group Activity)

IV. Health Observation (Film: Looking at Children)

V. Mode of Spread
   A. Direct (Transparency No. 11)
   B. Indirect (Transparency No. 12)

VI. Identification Activities
   A. Microscope
      1. View Slides of Louse
      2. Nit, Live and Dead
   B. Hair with Nit
   C. Wig--Practice Technique

VII. Prevention
   A. At School
      1. Education on Hygiene
      2. Awareness of Problem
      3. Pediculosis Is a Communicable Disease
   B. At Home
   C. In the Community

VIII. Role Playing
   A. Teacher Explains procedure and reason for head inspection
   B. Child Giggles and point finger at neighbor
   C. Teacher Compares pediculosis to other childhood diseases
   D. Second Child Tells class her own experience with lice
E. Angry Parent  Child caught lice at school
F. Teacher     Calms mother and advises on prevention

IX. Resource Material
   A. Film Strip:  Louie the Louse
   B. Folder
   C. Durbac Comb
   D. Bottle of Quell
   E. Picture of Louse

X. Evaluation
APPENDIX E

TRANSPARENCY MASTERS
Learn
Inspect
Check
Educate

Transparency No. 1
N  a  m  e
I d  e  n  t  i  f  y
T  c  a  h
S  e  g  r  e  g  a  t  e

Transparency No. 2
Event -> Action
Act Before Occurrence

Economy

LESS Pain
LESS Cost
LESS Time
LESS Energy
"Whadyer mean you wanna marry my daughter... I thought you were my daughter!"
Pediculus humanus capitis, head louse

Transparency No. 7
Nit or egg of head louse attached to head hair

1 mm

A hair cast on a human head hair

Transparencies No. 8 and 10
Life Cycle of the Head Louse

1st nymph

2nd nymph

3rd nymph

egg

female

male

Transparency No. 9
DIRECT CONTACT.

(11)

INDIRECT CONTACT.

(12)

Transparencies No. 11 and 12
APPENDIX F

FORCED CHOICE OF VALUES ACTIVITIES
Value Clarification

Values are influenced by many forces. How strongly do you feel about the following:

- People who take a bath once a week
- Removing a spider from your desk
- Giving blood twice yearly
- Families that have eight children
- Doughnuts for breakfast
- People who go to work when they have a cold
- Children who do not brush their teeth
- Drug pushers
- Children who wear torn clothes
- Thumb sucking
- Teenagers who smoke
- People who cheat on examinations

Directions:

Enter items in appropriate squares on next page. 1 meaning feel very strong about it, 12 meaning not very important to me.
FORCED CHOICE OF VALUES ACTIVITY

Worksheet

<p>| | | |</p>
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<tbody>
<tr>
<td>9</td>
<td>5</td>
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<td>10</td>
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<tr>
<td>11</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Couldn't care less

Adapted from: Dalis, Gus T. Teaching Strategies for Drug Education. Division of Curriculum and Instructional Services, Office of Los Angeles County Superintendent of Schools.
APPENDIX G

CURRICULUM FOR PRIMARY GRADE TEACHERS
**Area:** Pediculosis  
**Broad Concept:** Head lice are a communicable disease and can be controlled like other endemic diseases.  
**Grade Level:** K-3

<table>
<thead>
<tr>
<th>Suggested Objectives and Content Outline</th>
<th>Suggested Learning Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective I</strong></td>
<td></td>
</tr>
<tr>
<td>Students can recall that head lice live and lay their eggs in people's hair.</td>
<td></td>
</tr>
<tr>
<td><strong>Content Outline</strong></td>
<td></td>
</tr>
<tr>
<td>1. Head lice make their home in the hair of people</td>
<td>Show children pictures and transparencies of louse</td>
</tr>
<tr>
<td>2. Lice lay small eggs called nits.</td>
<td>Show and discuss slides of live and dead nits under the microscope</td>
</tr>
<tr>
<td>3. Nits take nine days to hatch.</td>
<td>Show hair with nit</td>
</tr>
<tr>
<td>4. Lice like a dark, warm place to live</td>
<td>Let children touch hair with nit so they can feel how tightly nits adhere to hair</td>
</tr>
<tr>
<td>5. The louse glues the nit close to the head where it is dark and warm.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggested Evaluation of Objectives</th>
<th>Suggested Resource Material</th>
</tr>
</thead>
</table>
| Students can tell class           | Poster: Norcliff Laboratories, Inc.  
| a. Where one finds head lice      | Professional Relations Division  
| b. How louse secures eggs         | Box 471, Fairfield, CT 06430  
| c. What environment the louse likes | Slides: Reed & Carnrick Research Institute  
<p>| Children can describe part of hair where louse lays eggs | Kenilworth, NJ 07033 |
| Children can explain what they saw under the microscope | Slides and Transparencies: Available from school nurse |</p>
<table>
<thead>
<tr>
<th>Suggested Objectives and Content Outline</th>
<th>Suggested Learning Opportunities</th>
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</thead>
<tbody>
<tr>
<td><strong>Objective II</strong></td>
<td></td>
</tr>
<tr>
<td>The student can distinguish between</td>
<td></td>
</tr>
<tr>
<td>dandruff and nits.</td>
<td></td>
</tr>
<tr>
<td><strong>Content Outline</strong></td>
<td></td>
</tr>
<tr>
<td>1. Dandruff is a flake of skin from the</td>
<td>Show student a picture of a nit</td>
</tr>
<tr>
<td>scalp.</td>
<td>and dandruff.</td>
</tr>
<tr>
<td>2. A nit is the egg of the louse.</td>
<td>Let students remove from hair</td>
</tr>
<tr>
<td>3. Nits can be confused with dandruff.</td>
<td>strand</td>
</tr>
<tr>
<td>4. Dandruff can be brushed off the</td>
<td>a. dandruff</td>
</tr>
<tr>
<td>hair.</td>
<td>b. a nit</td>
</tr>
<tr>
<td>5. Nits cannot be brushed off.</td>
<td>Show Durbac comb.</td>
</tr>
<tr>
<td>6. To remove nits one needs a special</td>
<td></td>
</tr>
<tr>
<td>comb.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggested Evaluation of Objectives</th>
<th>Suggested Resource Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student can explain to class what is</td>
<td>Keh, Benjamin, and John H.</td>
</tr>
<tr>
<td>meant by:</td>
<td>Poorbaugh. &quot;Understanding and</td>
</tr>
<tr>
<td>a. dandruff</td>
<td>Treating Infestations of Lice on</td>
</tr>
<tr>
<td>b. nit</td>
<td>Humans,&quot; California Vector</td>
</tr>
<tr>
<td>Student can recall that there is a</td>
<td>Berkeley: California State</td>
</tr>
<tr>
<td>special comb to remove nits from hair.</td>
<td>Department of Public Health.</td>
</tr>
<tr>
<td>Suggested Objectives and Content Outline</td>
<td>Suggested Learning Opportunities</td>
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<td>-----------------------------------------</td>
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<tr>
<td><strong>Objective III</strong></td>
<td></td>
</tr>
<tr>
<td>Students will be able to list ways</td>
<td></td>
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<tr>
<td>they can acquire lice from other</td>
<td></td>
</tr>
<tr>
<td>infested persons.</td>
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</tr>
<tr>
<td><strong>Content Outline</strong></td>
<td></td>
</tr>
<tr>
<td>1. Lice are spread directly by:</td>
<td></td>
</tr>
<tr>
<td>a. Close contact with an infested</td>
<td>Have students tell a short story about</td>
</tr>
<tr>
<td>person</td>
<td>how lice are spread.</td>
</tr>
<tr>
<td>b. Sleeping in the same bed as</td>
<td>Have students draw a picture of lice</td>
</tr>
<tr>
<td>an infested person</td>
<td>travelling from one person to another.</td>
</tr>
<tr>
<td>c. Loose hair</td>
<td></td>
</tr>
<tr>
<td>2. Lice are spread indirectly by:</td>
<td>Have students draw a comb and brush</td>
</tr>
<tr>
<td>a. Sharing combs and brushes</td>
<td>showing a louse and nit.</td>
</tr>
<tr>
<td>b. Using same hats, caps and</td>
<td></td>
</tr>
<tr>
<td>hair ribbons</td>
<td></td>
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<tr>
<td>c. Using the same clothes</td>
<td></td>
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<tr>
<td>d. Using the same pillows</td>
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<tr>
<td><strong>Suggested Evaluation of Objectives</strong></td>
<td></td>
</tr>
<tr>
<td>Students will name in their short</td>
<td>Pamphlet: Reed &amp; Carnrick Research</td>
</tr>
<tr>
<td>stories at least three ways they can</td>
<td>Institute. About Head Lice</td>
</tr>
<tr>
<td>acquire lice</td>
<td>and How to Get Them.</td>
</tr>
<tr>
<td>a. directly from someone else</td>
<td>Kenilworth, NJ 07033, 1973</td>
</tr>
<tr>
<td>b. indirectly by using same articles</td>
<td></td>
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<tr>
<td>as infested person</td>
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<tr>
<td>Students will name ways they can</td>
<td></td>
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<tr>
<td>identify their own brush and comb.</td>
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<tr>
<td>Suggested Objectives and Content Outline</td>
<td>Suggested Learning Opportunities</td>
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<td>-----------------------------------------</td>
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</tr>
<tr>
<td><strong>Objective IV</strong></td>
<td></td>
</tr>
<tr>
<td>Students can tell ways to prevent</td>
<td></td>
</tr>
<tr>
<td>the spread of head lice.</td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td></td>
</tr>
<tr>
<td>1. Everyone should have his or her own</td>
<td></td>
</tr>
<tr>
<td>brush and comb.</td>
<td>Have students play house and show</td>
</tr>
<tr>
<td></td>
<td>where each person keeps own brush</td>
</tr>
<tr>
<td></td>
<td>and comb.</td>
</tr>
<tr>
<td>2. Jackets, hats and caps should not</td>
<td>Have students demonstrate how</td>
</tr>
<tr>
<td>be shared.</td>
<td>they should hang up their coats,</td>
</tr>
<tr>
<td></td>
<td>jackets and caps.</td>
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<tr>
<td>3. In the classroom everyone should</td>
<td>Have students tell class what</td>
</tr>
<tr>
<td>hang his coat or jacket on a separate</td>
<td>they might do in order to identify</td>
</tr>
<tr>
<td>hook.</td>
<td>their own brush and comb.</td>
</tr>
<tr>
<td>4. Children should not put other</td>
<td></td>
</tr>
<tr>
<td>people's wigs on their heads.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggested Evaluation of Objectives</th>
<th>Suggested Resource Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have students tell class</td>
<td><strong>Booklet:</strong> U.S. Department of</td>
</tr>
<tr>
<td>a. Why they should have their own</td>
<td>Health, Education, and Welfare/</td>
</tr>
<tr>
<td>brush and comb</td>
<td>Public Health Services. **</td>
</tr>
<tr>
<td>b. Why they should not use their</td>
<td><strong>Controlling Head Lice.</strong></td>
</tr>
<tr>
<td>friends brushes and combs.</td>
<td>Atlanta, Georgia 30333. April,</td>
</tr>
<tr>
<td>c. Why they should not try on wigs</td>
<td>1975.</td>
</tr>
<tr>
<td>and hats of their friends.</td>
<td></td>
</tr>
<tr>
<td>Observe if children share brushes,</td>
<td></td>
</tr>
<tr>
<td>combs or hats.</td>
<td></td>
</tr>
<tr>
<td>Suggested Objectives and Content Outline</td>
<td>Suggested Learning Opportunities</td>
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<td>-----------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td><strong>Objective V</strong></td>
<td></td>
</tr>
<tr>
<td>Students will be able to state that pediculosis is a communicable disease that can be treated.</td>
<td></td>
</tr>
</tbody>
</table>

**Content**

1. Teachers or nurses are able to diagnose pediculosis by checking hair for nits.
2. Pediculosis is an infectious disease.
3. Children with pediculosis must be excluded from school.
4. Pediculosis can be treated with a special medicated shampoo.
5. The shampoo kills both the lice and the nits.
6. The shampoo is applied at home one or two times.
7. Dead nits should be removed with a Durbac comb.
8. The clothes of an infected person must be washed or dry cleaned.

<table>
<thead>
<tr>
<th>Suggested Evaluation of Objectives</th>
<th>Suggested Resource Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students can tell class that pediculosis is an infectious disease that can be treated.</td>
<td>Film Strip and Cassette:</td>
</tr>
<tr>
<td>Observe if children stay home when they have pediculosis.</td>
<td>Williams, Tina. Louie the Louse, available through Nursing Services, Los Angeles School District</td>
</tr>
<tr>
<td>Students can describe steps of treatment for pediculosis.</td>
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<tr>
<td><strong>Suggested Objectives and Content Outline</strong></td>
<td><strong>Suggested Learning Opportunities</strong></td>
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<td>---------------------------------------------</td>
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<tr>
<td><strong>Objective VI</strong></td>
<td></td>
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<tr>
<td>Students can tell symptoms of pediculosis.</td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td></td>
</tr>
<tr>
<td>1. Lice feed on human blood.</td>
<td>Show picture of louse sucking blood.</td>
</tr>
<tr>
<td>2. The parasite stabs an opening through the skin and sucks the blood.</td>
<td>Stimulate discussion on ways students can tell that they might have head lice.</td>
</tr>
<tr>
<td>3. The blood sucking causes itching.</td>
<td></td>
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<tr>
<td>4. Itching, the major symptom of louse infestation causes people to scratch.</td>
<td>Have students relate experience with mosquito bites.</td>
</tr>
<tr>
<td>5. At the scratch site sores may occur.</td>
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<tr>
<td>6. The skin irritation caused by head lice is similar to that resulting from a mosquito bit.</td>
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<th><strong>Suggested Evaluation of Objectives</strong></th>
<th><strong>Suggested Resource Material</strong></th>
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APPENDIX H

WORKSHOP EVALUATION INSTRUMENT
Content Evaluation

Multiple Choice: Please circle correct statement on answer sheet.

1. The only sure method of diagnosing live nits is:
   a. Microscopic examination
   b. Squeezing nit between fingers
   c. Brushing hair
   d. Examining scalp

2. After a tentative diagnosis of pediculosis is made, the teacher will:
   a. Send child to school nurse
   b. Exclude child from school
   c. Inform parents of child's conditions
   d. Give a talk on lice

3. Pediculosis is spread by all of the following, except one:
   a. Shared use of brushes
   b. Close direct contact
   c. Disregard to personal cleanliness
   d. Eating from the same utensils

4. Control of pediculosis in the classroom can be achieved by:
   a. Early identification
   b. Education
   c. Cleanliness
   d. Yearly head inspection

5. Prevention of pediculosis in schools can be assisted by:
   a. Shampooing hair regularly
   b. Weekly head inspection
   c. Applying Black Flag to head
   d. Talking to parents

6. The word nit describes:
   a. Dandruff
   b. A hair cast
   c. A speck of paint
   d. The egg of the head louse
7. The head louse is an insect that lives only on:
   a. Animals
   b. Plants
   c. Man and animals
   d. Man

8. Pediculosis can be treated by:
   a. Applying a pediculocide to scalp
   b. Shampooing hair
   c. Rinsing hair with vinegar
   d. Taking a shower

9. After a diagnosis of pediculosis has been made, it is necessary to:
   a. Only treat infested person
   b. Examine person, contacts and sanitize home
   c. Check all family members
   d. Examine all contacts

10. A unit on hygiene in connection with pediculosis should include:
    a. Brushing teeth
    b. Getting enough sleep
    c. Controlling communicable diseases
    d. Eating nutritious meals

11. The person who examines children's heads for lice:
    a. Is in constant danger of getting lice herself
    b. Never will get lice
    c. Develops immunity to lice
    d. Will not get infested if she uses good technique

True and False. Directions: Please use answer sheet and fill in T or F.

1. The head louse is a wingless insect.

2. The egg of the head louse is known as nit

3. Dead nits can be removed from hair by washing with vinegar.

4. The host's body temperature must be between 75° and 100° for the louse to survive.

5. Treatment of pediculosis consists of shampooing hair with any commercial shampoo.
6. Caucasians are immune to head lice.
7. Pediculosis is a communicable disease.
8. Usually only one member of a family is infested with pediculosis.
9. Head lice are only found on people living under unsanitary conditions.
10. The Durbac Comb is used to remove nits.

Fill in. Directions: Please fill in the appropriate word(s) in space provided.

1. Pediculosis is spread by ____________ and ____________ contact.
2. If head lice are found on one member of the family ____________ should be examined.
3. ____________ can easily be confused with nits.
4. Pediculosis control should be taught during units on ____________ diseases.
5. Children who have pediculosis must be ____________ from school.
6. The spread of head lice in the classroom can be prevented by ____________ ____________ ____________.
7. Examination under the ____________ is the only sure method of diagnosing live nits.
8. The louse sucks ____________ from its host.
9. ____________ can get head lice under the right conditions.
10. In addition to delousing a person it is necessary to thoroughly ____________ the home.
1. In teaching elementary school children about head lice, what three main points would you cover?

2. What do you consider to be the best time of the day to do head inspection in your classroom and why?

3. During head examination, you found that Maria has pediculosis. Maria has three other siblings in this school. What action will you take?

4. An angry parent comes to you and says her child caught lice at school. What will you tell this mother?

5. Defend the following statement: "It is no disgrace to have lice, but it certainly is to keep them."

6. Name three other skin problems you would watch for when doing head inspection in your classroom.

Comments:
Workshop Evaluation

Please insert answer that best completes the following statements for you:

1. I now feel _________ to talk about head lice in my classroom.
   a. free
   b. not free

2. I have _________ information to do head inspection on the children in my class.
   a. enough
   b. not enough

Do you think the following goals pertaining to the workshop have been achieved:

Directions: Place a check mark in the appropriate space.

Rating scale: The range is from 5 for excellent to 1 unsatisfactory

|  |  |  |  |  |  |
|---|---|---|---|---|
| 1. The subject of pediculosis need not lead to embarrassment of child or teacher if presented as an integrated part of the curriculum. | 5 | 4 | 3 | 2 | 1 |
| 2. The identification of nits has been facilitated through the use of audio-visual material and practice sessions. |  |  |  |  |  |
| 3. The presentation of control and prevention of pediculosis, a communicable disease, has been effectively communicated for use in the classroom. |  |  |  |  |  |

Please rate the following on scale to right:

|  |  |  |  |  |  |
|---|---|---|---|---|
| 1. Presentation of audio-visual material | 5 | 4 | 3 | 2 | 1 |
| 2. Learning activities |  |  |  |  |  |
| 3. Content meaningful for use in classroom |  |  |  |  |  |
| 4. Presentation varied and stimulating |  |  |  |  |  |
APPENDIX I

SEMANTIC DIFFERENTIAL SCALE
Semantic Differential Scale

Instructions: Please rank the items below and enter in scale at right.

<table>
<thead>
<tr>
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<th>For</th>
<th>Against</th>
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<tbody>
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<td>2</td>
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<td></td>
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<td>5</td>
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</table>

1. Touching children
2. Talking about head lice in class
3. Touching children's hair
4. Examining children for pediculosis
5. Touching the hair of a child with pediculosis
6. Fear of getting head lice yourself