

AN EXPERIMENT IN A NURSE OPERATED COLD CLINIC
AT MONTANA STATE UNIVERSITY

by

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TABLE OF CONTENTS

CHAPTER	PAGE
1. THE PROBLEM AND REVIEW OF THE LITERATURE	1
Introduction	1
The Problem	3
Statement of the purpose	3
Statement of the problem	3
Review of the Literature	4
Method Used	5
11. ANALYSIS OF FINDINGS	9
Time Spent	11
Response	12
Cost	13
Other findings	14
111. SUMMARY AND RECOMMENDATIONS	20
Summary	20
Recommendations	21
APPENDIX	23
LITERATURE CITED	27

LIST OF TABLES

TABLE	PAGE
1. A COMPARISON BY SEX OF THE PARTICIPANTS IN THE COLD CLINIC WITH AUTUMN QUARTER REGISTRATION IN THE UNIVERSITY	9
11. A COMPARISON BY CLASS OF THE PARTICIPANTS IN THE COLD CLINIC WITH AUTUMN QUARTER REGISTRATION IN THE UNIVERSITY	10
111. A COMPARISON OF THE TIME SPENT IN THE STUDENT HEALTH SERVICE BETWEEN THE EXPERIMENTAL AND CONTROL GROUP	11
IV. A COMPARISON OF THE 48 HOUR RESPONSE BETWEEN THE CONTROL GROUP AND THE EXPERIMENTAL GROUP	12
V. A COMPARISON OF THE COST OF MEDICATIONS BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS	13
VI. A LIST OF SOME OF THE MEDICATIONS AND TREATMENTS LISTED BY THE 100 PARTICIPANTS	16
V11. SOME OF THE REASONS GIVEN BY THE 100 PARTICIPANTS FOR WHY THEY CAUGHT COLDS	17

ABSTRACT

The purpose of this experiment was to examine ways in which a nurse operated cold clinic might affect the Student Health Service at Montana State University.

Approximately 30 per cent of the visits to the Student Health Service at Montana State University are for the relief of symptoms of the common cold. The condition is recognized by the student and can be treated by the nurse under medical standing orders of the Health Service physicians.

The problem was to examine for differences the response of the students treated for a common cold in the cold clinic were from those treated in another service of the Student Health Service.

It was hypothesized that the cold clinic would save time for the students, and that there would be no increase in the cost of personnel or medications.

One hundred students participated in the experiment, assigned alternately between an experimental and control group.

The findings revealed: (1). There was no appreciable difference in the amount of time spent in the Health Service between the students in the control group and the students in the experimental group. (2). The cost of medications was about equal between the two groups. (3). The response and recovery patterns were found to be essentially the same in both groups. (4). There was no additional cost for staffing. The cold clinic was operated with the present personnel. (5). The majority of the students did not believe in the germ theory of disease. (6). By having the students who were reasonably sure they had a cold go directly to the cold clinic there was less congestion in the reception room. (7). There was less traffic through the laboratory because the throat cultures for the students who had a sore throat with their colds were plated in the cold clinic. (8). The cold clinic was well received by the participants in the experiment, as well as by most of the Health Service staff.

The conclusions were: (1). That a cold clinic should be initiated and operated at the Student Health Service at Montana State University for a period of one year. The findings then should be reappraised to determine if they are comparable to the findings of this experiment. (2). A program should be established to help educate the university students in the areas of self-care and prevention of the spread of the common cold.

CHAPTER I

INTRODUCTION

A review of the Annual Reports of the Student Health Service of Montana State University from 1963 to 1966 indicated that approximately 30 per cent of the total student visits were for the treatment of the common cold.¹ The common cold exceeded by 1.5 per cent the rate of the next most common causes for visits, which were traumatic injuries and skin diseases.

At the end of each class period the reception room of the Student Health Center is crowded with students waiting to be seen. Students with symptoms of the common cold might possibly spread the infection to the rest of the students in the room.

The length of time that has to be spent in the reception room is significant to the university students, since coming to the Student Health Service may cause them to miss classes. Many students with a common cold may hesitate to get medications for symptomatic relief because they may have to wait to be seen by the physician.

From their own past experiences, the students usually know when they have a common cold, and they know what medications have been most effective in giving them relief from their uncomfortable symptoms.

1

Annual Reports, Student Health Service, Montana State University, 1963-66

The common cold, by definition, is usually meant to be that syndrome of symptoms caused by a viral infection of the upper respiratory tract. About 97 per cent of the upper respiratory infections are due to this viral infection. The viruses of the common cold are spread from the infected person to other susceptible individuals by direct person-to-person contact. The viruses are emitted and airborne in droplet spray during respiration, and especially during sneezing. Scientists, through their increasing ability to recover viruses, have found that 5 to 10 per cent of the common colds are associated with more than one virus. It is thought that there are approximately 80 different strains of viruses known that can cause the syndrome known as the common cold. There may be 100 more viruses still to be isolated that cause symptoms of mild upper respiratory infections.²

The duration of the symptoms of the common cold is usually limited to 5 to 7 days. There is usually a gradual onset of the cold which lasts from one to two days. The initiation of treatment in relation to how long the patient has had the cold is believed to have no effect upon the recovery pattern.³

2

Paul B. Beeson, M.D. and Wals McDermott, M.D., Textbook of Medicine, W. B. Saunders Company, Philadelphia, 1967, pp. 10-12.

3

Louis Goodman, M.A. M.D. and Alfred Gilman, PhD., The Pharmacological Basis of Therapeutics, The Macmillan Company, New York, 1965, p 540.

To the present time of 1967, there is no known specific medicine which will cure the common cold. The cold is believed to be cured by the patient's own body defense mechanisms against the virus invasion. At the Montana State University Student Health Service the treatment of the common cold and the medications that are dispensed to sick students by the nurses follow a routine procedure supported by medical standing orders. The medications and treatments are administered for the purpose of relieving the patient of the uncomfortable symptoms of the cold.

1. The Problem

Statement of the purpose. The purpose of this experiment was to examine ways in which a nurse operated cold clinic might affect the Student Health Service at Montana State University.

Statement of the problem. The problem was to examine for differences in the responses of students treated for the common cold in the cold clinic from those receiving treatment for the common cold in another service of the Student Health Service. The differences visualized were believed to be related to the following observations:

- (1) The student who was reasonably sure that he had a common cold would go directly to the cold clinic. If he did not have to wait to be seen by the physician, the cold clinic would save time for the student who had a common cold.
- (2) There would be no essential difference in the

amount, kind, or cost of medications used in the cold clinic and the amount, kind, or cost of medications used in another service of the Student Health Service in treating the common cold. (3) There would be no increase in the cost of personnel, because the cold clinic could be operated with the present personnel.

11. Review of the Literature

Since the research and study of viruses began there has not been much published in the way of innovations either in the treatment or cure of the common cold that has proven satisfactory. Vaccines and immunizations have been tried, but were not found to be satisfactory to the medical profession.⁴

Research is being conducted now on rhinoviruses at the University of Virginia, supported by the National Institute of Allergy and Infectious Diseases (NIAID). They hope to concentrate the viruses identified as causing the common cold into a "cocktail".⁵

Dr. Norman G. Anderson of the Oakridge (Tenn.) National Laboratory predicts that within the next two or three years an annual one-shot "cocktail" which contains from 10 to 20 vaccines will be available. They are presently working on preparations for a "cocktail"

4

Goodman and Gilman, op. cit., p 540

5

Current Research Approaches to the Common Cold, A report prepared by the National Institute of Allergy and Infectious Diseases for the Department of Health, Education and Welfare, April, 1967.

containing influenza viruses, adenoviruses, respiratory syncytial virus and rabies vaccine.⁶

Dr. Jindrich Urban, chief surgeon, Department of Otorhinolaryngology, Thomayer Hospital, Prague has challenged the virus theory as the causative agent of the common cold. He does not believe that it has been definitely proven that the common cold is a viral disease. His theory is that a cold begins with a contraction of the blood vessels in the nasal mucosa, followed by edema of the surrounding tissue, and by a histamine release which leads to a breakdown in ciliary movement. He feels that this creates the condition for infection. The severity, he feels, depends on the nature of the pathogens in the nasal flora.⁷

Nurse operated cold clinics have been tried in other universities. Some are still in operation and others are reported as having been discontinued as not being satisfactory.

111. Methodology

The study was conducted for the purpose of examining ways in which a nurse operated cold clinic would affect the Student Health Service

6

Medical Tribune World Wide Report, "Single 'Cocktail' Of 10-20 Vaccines Is Possible Soon," Medical Tribune, Thursday October 26, 1967.

7

Medical Tribune Report, European Bureau, "Prague MD Opposes Prevalent Theories On Cause Of Colds," Medical Tribune, Vol. 9, Nov. 6, 1968.

at Montana State University. It was hypothesized that: (1). The cold clinic would save time for the students since they would not have had to wait to be seen by the physician. (2). The reception room would have been less congested because the students who felt they had a common cold would have gone directly to the cold clinic. (3). There would have been no difference in the cost of the medication used nor any increased cost for staffing because the cold clinic could be operated with the present personnel.

The cold clinic was operated completely within one room in a location set apart from the other Health Service facilities. All of the facilities needed to check the students, the medications which were used, and the media plates for throat cultures were located within the room.

The Student Health Service physicians provided the guide lines for the nurses to use in the recognition of the common cold. (See Nurse's Guide For The Recognition Of The Common Cold, p. 24)

Only the students presenting themselves at the Student Health Service stating that they had a cold and wanted some medications for the relief of symptoms were included in the experiment. The students were assigned alternately between being sent directly to the cold clinic and being treated in another service of the Student Health Service. One was sent to the cold clinic and became a member of the experimental group. The next one was asked to wait in the reception room until called into another service and became a member of the control group. This procedure was

continued over a period of eight days until 50 students has been assigned to each group. The usual procedure used by nurses for screening patients and caring for patients who do not need to see the physicians was also used for the students in the control group. Their clinical records were stacked along with the other students' records in the order in which they entered the Health Service. Usually, three nurses work in the same room with three or four students at a time. Interruptions are frequent for immunizations, various treatments, calls from the physicians for assistance, and calls to the drug room for prescriptions to be filled. The atmosphere is not conducive to direct and personal communication.

If any student presented symptoms which indicated to the nurse that he might have a condition other than a common cold, he was sent to the physician and was not included in the study.

Each student was given a sheet explaining certain aspects of the study and instructing him to time himself in and out of the Student Health Service, to report back to the Student Health Service within 48 hours to inform of his response to treatment, and to report back to the Student Health Service within one day after he felt that he had completely recovered from his cold. (See Instruction Sheet Given Each Participant in the Cold Clinic p. 26). Each student was instructed to report back immediately if he felt he was not progressing satisfactorily.

The students in both groups were asked to write answers to four questions.

1. How long have you had your cold?
2. How long do your colds usually last?
3. What do you usually do for a cold?
4. Why do you think you caught a cold?

The answer to the first question gave a base line for measuring the responses of the patients to the medications given. The answers to the next three questions gave the nurses an indication as to how much the students knew about the common cold and how much they knew about self care of the common cold.

The nurses gave the same medications for the relief of symptoms to both groups. The medications were those that were approved by standing orders of the staff of physicians at the Student Health Service. (See Nurse's Guide For Symptomatic Relief of the Common Cold p 25). The students were not given cough syrups unless they were coughing, nor were they given a throat culture or throat lozenges unless they had a sore throat or dysphagia.

CHAPTER 11

ANALYSIS OF FINDINGS

The experiment was conducted Autumn Quarter, 1967 for eight days between October 18 and November 1. The days were not consecutive because many of the students failed to report back to the Student Health Service, and time had to be allowed for calling those who failed to report.

The Registrar at Montana State University supplied the statistics for Autumn Quarter registration 1967; males 4413, females 2406, total 6,819. The ratio of male to female registrations during Autumn Quarter was about 2 to 1.

In the experimental group of the cold clinic there were 36 males and 14 females. In the control group there were 32 males and 18 females. The same approximate ratio of male to female, as seen in the registrations, was also seen in the participants of the cold clinic.

TABLE 1

A COMPARISON BY SEX OF THE PARTICIPANTS IN THE COLD CLINIC
WITH AUTUMN QUARTER REGISTRATION IN THE UNIVERSITY

	MALE	FEMALE	TOTAL
AUTUMN QUARTER REGISTRATION 1967	4413	2406	6819
EXPERIMENTAL GROUP	36	14	50
CONTROL GROUP	32	18	50

A breakdown by class of the experimental group revealed 10 Freshmen, 13 Sophomores, 8 Juniors, 17 Seniors, and 1 Graduate student. In the control group there were 17 Freshmen, 13 Sophomores, 12 Juniors, 7 Seniors, and 1 Graduate student.

TABLE 11

A COMPARISON BY CLASS OF THE PARTICIPANTS IN THE COLD CLINIC
WITH AUTUMN QUARTER REGISTRATION IN THE UNIVERSITY

CLASS	AUTUMN QUARTER REGISTRATION	EXPERIMENTAL GROUP	CONTROL GROUP
Fresh.	2410	10	17
Soph.	1434	14	13
Jr.	1220	8	12
Sr.	1384	17	7
Grad.	570	1	1

During the same days that the cold clinic was in operation a total of 201 students were treated for the common cold in the Student Health Service. Approximately one half of the students with a common cold were able to self-diagnose their conditions. Some of the students were not aware of the operation of the cold clinic and thought they had to see a physician at the Student Health Service before they could get any medications for their colds.

1. Time Spent

Students in the experimental group spent an average of 12.58 minutes in the Student Health Service. The time spent ranged from 3 minutes to 32 minutes. Students in the control group spent an average of 11.2 minutes in the Student Health Service, ranging from 2 minutes to 32 minutes.

TABLE 111

A COMPARISON OF TIME SPENT IN THE STUDENT HEALTH SERVICE
BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS

	10 Minutes or Less		More than 10 Minutes	
	Male	Female	Male	Female
Experimental Group	20	7	16	7
Control Group	21	6	11	12

Even though the cold clinic relieved the congestion in the reception room by receiving the students with the common cold directly, there was no appreciable difference between the two groups in the amount of time spent in the Student Health Service. It is possible that more time would have been saved for the students in the experimental group if the cold clinic had been established as an on going service, because time was used in explaining the purpose of the experiment.

11. Response

The students in the experimental group had had their colds an average of 3.2 days before going to the Student Health Service. Their colds lasted an average of 10.04 days after receiving medications. Five students returned for additional medications. The report of their conditions in 48 hours was; 30 better, 11 unchanged, and 9 worse.

The students in the control group had had their colds an average of 2.46 days before going to the Student Health Service. Their colds lasted an average of 8.64 days after receiving medications. Six students returned for additional medications. One of the six students returned twice for additional medications. The response in 48 hours was; 31 better, 9 unchanged, and 10 worse. The average number of days the colds lasted in both the control group and the experimental group was longer than the estimated 5 to 7 days. There were no students from either group who returned before the 48 hour period because they felt they were not progressing satisfactorily.

TABLE IV

A COMPARISON OF THE 48 HOUR RESPONSE BETWEEN THE CONTROL GROUP AND THE EXPERIMENTAL GROUP

	Better	Unchanged	Worse
Experimental group	30	11	9
Control group	31	9	10

There were no elevations of temperature above 99°F in either group. There were no throat cultures which revealed an incidence of Beta hemolytic streptococcus or Beta hemolytic staphylococcus. The physical findings of pale, watery mucosa, red and teary eyes, and moderately reddened throats were present in most of the students in both groups. There was one incidence of tender anterior cervical lymph nodes which was reported to have disappeared in 48 hours.

The majority of the students went to the Student Health Service during the first three days of their colds. The largest number visited on the second day of their colds. Nineteen students had had their colds from four days to one week. One student had had his cold twenty one days. He was doubtful as to whether or not it was one continuous cold.

. 111. Cost

The total cost of medications for the experimental group was \$56.25. The total cost of medications for the control group was \$57.04.

TABLE V

A COMPARISON OF THE COST OF MEDICATIONS BETWEEN THE
EXPERIMENTAL GROUP AND CONTROL GROUP

	Total Cost	Average cost per student
Experimental group	\$56.25	\$1.13
Control group	\$57.04	\$1.14

IV. Other Findings

The students did not take time away from classes for additional rest. All of the students continued going to classes. There was never any concern voiced about exposing other students to colds. The students showed only concern for their own comforts.

The responses to the four questions were as follows:

1. How long have you had your cold?

Eighty students stated that they had reported to the Student Health Service during the first three days of their colds. The largest number reported on the second day. Twenty students had had their colds for more than four days, one of these students had had his cold 21 days before going to the Health Service

	1 day	2 days	3 days	4 or more days
Number of students	24	32	24	20

2. How long do your colds usually last?

The majority of the students responded that their colds lasted a week or more. Twenty six believed their colds usually lasted less than a week. Five students did not know how long their colds usually lasted. A comparison of how long the students estimated that their cold lasted with how long they actually lasted showed; 9 students had their colds as long as they estimated that they usually lasted, 53 students had their colds longer than they thought they would, 32 students did not have their colds as long as they thought they would, and 5 students did not know how long

their colds usually lasted.

	Less than a week	One week	More than a week	Did not know
Number of students	26	36	33	5

Slightly more than one half of the students had their colds longer than they estimated. Two students who felt that their colds would last 2 and 3 months unless they were treated with Penicillin recovered in 11 and 12 days with the usual cold medications.

3. What do you usually do for a cold?

Aspirin and antihistamines were included most frequently in what the students usually took for their colds. Four students included taking Vitamin C. Eleven students included gargles and throat lozenges. Two students reported that they usually had an injection of Penicillin. These same two students stated that without Penicillin their colds would last two or three months. Additional rest was included by 21 students, and increasing liquid intake was included by 14. Many students included more than one treatment or medication in what they usually did for a cold.

TABLE VI

A LIST OF SOME OF THE MEDICATIONS AND TREATMENTS LISTED
BY THE 100 PARTICIPANTS

Medication	No. of Students	Treatments	No. of Students
Aspirin	37	Additional rest	21
Antihistamines	36	Increased liquids	14
Vitamin C	4	Go to Health Service	10
Throat lozenges or gargle	11	Hot tea	1
Penicillin	2	Hot shower	1
Nothing	5	Nothing	5

4. Why do you think you caught a cold?

Only 29 students thought they caught their colds from a contact with someone who had a cold. This was usually from a room mate, wife or girl friend. Forty students felt they caught colds because they had gotten chilled. Some of the reasons for getting chilled were; not properly dressed, got cold at the football game, got wet feet while out hunting, went outdoors too soon after exercising, and slept with the window too wide open at night. Thirteen students did not know why they caught a cold and one student felt that there was no reason as to why he caught a cold. Some of the students gave more than one reason for catching a cold.

TABLE VII

SOME OF THE REASONS GIVEN BY THE 100 PARTICIPANTS FOR
WHY THEY CAUGHT COLDS

Reason for catching a cold	Number of students
Got chilled	40
From contact with someone who had a cold	29
Not enough rest	15
Don't know	13
Weather changes	11
Run down	8
Improper diet	2
Tendency to catch colds	1
No reason	1

Only a small portion of the students believed that the common cold is transmitted from an infected person to other susceptible persons.

V. Incidental Findings

The students felt that the initiation of a cold clinic at the Student Health Service would be a very good idea. They like not having to wait in the waiting room.

The amount of work imposed by the cold clinic was not increased for the receptionist. She felt that the waiting room was less congested while the cold clinic was in operation.

The medical technologists were in favor of the cold clinic because there was less traffic in the laboratory without the students requiring a throat culture being sent there.

The nurses found it difficult to become accustomed to having everything centrally located. They found themselves going to the drug room for medications instead of using the medications in the cold clinic. The nurses were not in favor of a cold clinic. Some of the opinions expressed by the nurses as to why they would not like to be assigned to a cold clinic were: (1). It would be a monotonous position. (2). They would be isolated from the other activities of the Health Center. (3). They would miss being able to socialize with the other nurses.

To determine if the medication given was sufficient and if the students were using the medications, all of the students were contacted again after they were completely recovered from their colds. They were asked: (1). If they had been given sufficient medications to relieve their symptoms? (2). If they had any medications left?

Except for the eleven students who returned for additional medications all of the students felt they had been given sufficient medications. Four students each had 4 cold capsules out of 16 left, and one student had 4 lozenges out of 12 left. Fifty seven students

out of the seventy nine students who took nasal spray had nasal spray left. Some of these students stated that they had used it once or twice and did not like the sensation of the spray.

From past experiences it is known that students pass medications on to their friends and room mates, so it is difficult to determine whether or not they had taken their medications or given to others what they felt they did not need.

CHAPTER III

SUMMARY

A nurse operated cold clinic was conducted as an experiment at the Student Health Service at Montana State University. It was hypothesized that; (1) the cold clinic would save time for the students, (2) there would be less congestion in the reception room, and (3) there would be no additional cost either in the medications used or the staffing pattern.

The cold clinic was operated entirely within one room, apart from the other services of the Health Service, under the written guide lines of the physicians at the Student Health Service. The students were given specific times in which to report back to the Student Health Service so their response could be checked. If they failed to report, they were called.

Students who presented themselves at the Student Health Service asking for medication for relief of a common cold were assigned alternately to the experimental and control group until 50 has been assigned to each group.

The findings showed that there was no appreciable difference in the amount of time spent in the Student Health Service between the two groups. However, time might have been saved for students in the experimental group if explanations about the experiment had not been necessary.

The reception room was less crowded during the operation of the cold clinic.

The cost of medications was about the same for each group. The averages were \$1.13 per student in the experimental group and \$1.14 in the control group.

The majority of the students went to the Student Health Service during the first three days of their colds. Slightly more than half of the students had their colds longer than they estimated their colds usually lasted.

Aspirin and antihistamines were the most popular choices of medications listed by the students when asked what they usually did for a cold.

Only 29 students believed that the common cold is transmitted by someone who is infected with any of the viruses of the common cold.

A nurse operated cold clinic met with the approval of the students and all of the Student Health Service personnel with the exception of the nurses. The nurses felt that being assigned to a cold clinic would isolate them from other personnel. They would prefer to be where they had an opportunity for socialization with the other nurses.

RECOMMENDATIONS

A cold clinic at the Student Health Service at Montana State University should be initiated and operated for one year. At the end of one year the advantages and disadvantages should be reappraised. Then if it is still found to be advantageous it could be put into permanent

operation. The cold clinic could be situated near the activity center of the other nurses, so that the nurse assigned to the cold clinic would not feel isolated.

The cold clinic should be located and labeled so that it is readily visible to the students.

The Student Health Service should explore ways to educate the students about the transmission of the cold, for their own protection as well as protecting others.

Recommendations for Further Study

1. To explore reasons why students do not take their medications when they know the reasons why they should be taking them.
2. To find a way to prepare nurses for independent functions.

APPENDIX

NURSE'S GUIDE FOR RECOGNITION OF THE COMMON COLD

Symptoms of the common cold

Rhinitis

rhinorrhea

nasal congestion

sneezing

Headache -- generalized

Sore throat

Ears may feel plugged

Mild general aching

Fever may be present up

to 101°F

Mild, non productive cough

from throat or sub-

sternal cough

Duration: 5 to 7 days. Mild

cough and nasal discharge

may persist longer

Physical findings

Pale, watery nasal mucosa

Eyes may be red and teary

Moderately reddened throat

Slight elevation in

temperature up to 101°F

Ears are not inflamed --

drums are not affected

Tender anterior cervical

lymph nodes may be

present

NURSE'S GUIDE FOR SYMPTOMATIC RELIEF OF THE COMMON COLD

Treatment for reduction of symptoms

1. Rest

all of the additional rest that the student can get

2. Aspirin

reduces headache

reduces muscle aching

reduces fever

relieves the pain of a sore throat

3. Antihistamines and decongestants

decreases the rhinorrhea and nasal congestion by inhibiting

the flow of mucoid discharge from the mucosal glands

4. Symptomatic drugs

cold capsules -- combining aspirin with antihistamines

throat lozenges (non-antibiotic) provides a local mild

anesthetic

cough syrups (non-antibiotic)

nasal sprays (non-antibiotic)

mild gargle or mouth washes (non-antibiotic)

INSTRUCTION SHEET GIVEN EACH PARTICIPANT IN THE
COLD CLINIC

Thank you for participating in a study to determine the value of a cold clinic at the Student Health Center. Without your cooperation it will not be possible to complete the study. Please follow the instructions carefully.

Write down the time you entered the Health Service. _____

Write down the time you were ready to leave the Health Service. _____

Please return within 24 hours to let us know whether or not your cold has changed.

Return within one day after you have recovered from your cold.

Please leave this slip at the receptionist's desk on your way out.

HOW LONG HAVE YOU HAD YOUR COLD?

HOW LONG DO YOUR COLDS USUALLY LAST?

WHAT DO YOU USUALLY DO FOR A COLD?

WHY DO YOU THINK YOU CAUGHT A COLD?

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