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Measuring Absenteeism

A. Mikalachki and Jeffrey Gandz

> The purpose of this paper is two fold: to provide a rationale for expending effort on measuring absenteeism and to unravel some of the complexities associated with the measurement and interpretation of absenteeism data.

Managers who decide to measure absenteeism in their organizations must make a number of complex decisions about what to measure and how to measure it. They are faced with an almost bewildering array of absenteeism indices, some based on frequency and others on inactivity. They must decide the absences to be included in their measurements; should they include all absences or only those of a specific type or duration? They must decide which employees to include in their computations; should all employees be included or only full-time or non-probationary employees? The possible combinations are many.

Most managers never face these decisions. In 1971, a Bureau of Labour Statistics' survey of 500 U.S. firms indicated that fewer than 40 percent of the firms studied kept absenteeism records (Hedges, 1973). A 1977 survey of 1600 firms in Ontario showed that only 17 percent kept absenteeism data although 36 percent noted that absenteeism was among their most significant human resource problems (Robertson and Humphreys, 1978).

There is a growing awareness of the costs of absenteeism, both to the economy as a whole and to the individual enterprise. U.S. estimates are that 3.5 percent of scheduled work hours or approximately 9.1 days per employee are lost to absenteeism annually (Hedges, 1977). Canadian estimates run as high as 12.7 days per employee per year (Financial Post, Oct. 22, 1977). In strike prone Canada, the loss due to absenteeism is about

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11 times the days lost through strikes (London Free Press, Oct. 12, 1978). The yearly costs to the economy are staggering. The yearly costs have been variously estimated at \$26 billion in the U.S. (Steers and Rhodes, 1978) and \$10 billion in Canada (Financial Post, Oct. 22, 1977). The costs to the individual enterprise have been estimated at \$66 per employee per day in one U.S. study (Mirvis and Lawler, 1977) while another study indicates that a firm employing 1000 people could save \$150,000 per year with a one percent reduction in absenteeism (Hawk, 1976).

This paper is directed at managers who are concerned about these costs and want to do something about them. Its purpose is two-fold; to provide a rationale for expending effort on measuring absenteeism and to unravel some of the complexities associated with the measurement and interpretation of absenteeism data. Specifically it addresses six major issues: reasons for measuring absenteeism, types of absenteeism which should be measured, basic and situational data about absenteeism which should be gathered, methods of data collection, indices of absenteeism, and interpretation of absenteeism data.

To bring these issues to life they are dealt with in the context of a study of absenteeism in a heavy manufacturing plant in Southwestern Ontario. The plant employed, in an average month, 350 hourly paid people in a variety of unskilled, semiskilled, and skilled jobs. Employment level and shift scheduling varied widely through the year, reflecting the seasonal demand for this firm's principle products. Management began collecting absenteeism data on their own initiative in 1975 with the authors becoming involved in its analysis, and subsequent recommendations for modifying data collection, analysis, and interpretation, in the middle of 1978.

REASONS FOR MEASURING ABSENTEEISM

There are four reasons why managers should measure absenteeism: (1) payroll and benefits program administration; (2) planning manpower requirements for production scheduling; (3) identifying absenteeism problems; and, (4) measuring and controlling personnel costs.

Payroll and benefits program administration

This is the most obvious reason why organizations need some type of data on who is, or is not, at work and why. Individuals must be paid, not paid, or otherwise compensated for absences covered by a benefit program or other contractual provision. The data provided is on the individual. It will usually cover the duration of the absence and the reason for the absence in a number of categories such as sickness, work-related accident, bereavement, jury duty, scheduled vacation, and other reasons specific to the employment relationship. Such data may provide the "building blocks" for the construction of aggregate data and individual absence record needed for other purposes.

Planning manpower requirements for production scheduling

One of the studies previously cited estimated that, on average, firms employ ten percent more people than they theoretically need to if attendance were perfect (Robertson and Humphreys, 1978). They overstaff to protect themselves against manpower shortages which might limit production. Such overstaffing is, of course, a significant cost to the firm; on the other hand, manpower shortfalls carry with them potential loss of revenue if the production cannot be made up.

Historical data on absenteeism can assist the manpower planner to arrive at optimal staffing levels. With knowledge of mean absenteeism rates, the range and the variance of absenteeism, management science techniques can be used to prepare a schedule of the number of people likely to show up for work on a specific shift. The ability to forecast attendance, instead of "guessing" at it, is largely a function of the quality of historical data. It is important that managers avoid the cost of over-staffing at the highest historical leave of absenteeism.

Identifying absenteeism problems

Before considering measures to control absenteeism, the manager must ask "Do I have a problem?" Given that some level of absenteeism is inevitable, and perhaps desirable, the answer to this question must take the form of a relative statement. Departments managers may compare their absenteeism with that in other departments; total organizational absence rates may be compared with industry, regional, or national rates.

Such comparisons are difficult. In part the difficulty arises from the fact that, at the present time, there is a lack of consensus on definitions of absenteeism and the indices that should be used. A second problem arises in the choice of a suitable reference group for comparison. A Southwestern Ontario heavy manufacturing plant would not want to compare itself with a logging operation in Northern British Columbia. But what groups would be suitable for comparison?

Certain criteria for selecting reference groups are discussed in the last section of this paper in which we discuss the issues in the interpretation of absenteeism data. In general, however, the choice of reference groups depends on the manager understanding the variables which may affect absenteeism rates and his ability to distinguish between the variables over which he has little control, such as basic technology, economic conditions, or the state of local labour markets, from those over which control can be exerted such as supervisory practices and working conditions. Comparisons should be made only between groups facing similar external, noncontrollable influences.

Measuring and controlling personnel costs

People who don't show up for work may do so because they have a low motivation to attend, an inability to attend, or some combination of the two (Steers and Rhodes, 1978). Researchers into absenteeism have shown that the motivation to attend is influenced by two sets of variables (figure 1). The first relates to various components of the individual's satisfaction with the job including satisfaction with pay, scope, autonomy, supervision, stress, and others. The second set consists of the various pressures to attend exerted by the organization's reward and punishment system, work group attendance norms, the individual's commitment to the organization, or personal work ethic. The inability to attend may be a function of personal illness, family responsibilities, transportation problems, the weather, and many others.

Of critical importance in the measurement and control of personnel costs associated with absenteeism, is the recognition that some proportion of it can be influenced by managerial action and some cannot. Actions can be taken to improve employees' satisfaction with a number of aspects of their jobs. For example, attendance can be rewarded and absence punished. Also the selection process can honed to come up with employees whose characteristics are well matched to the job or role requirements. But there is little managerial action that can be directed against a blizzard or a 'flu epidemic'. Indeed, there are times when management may be quite content to incur an absence, as for example, in the case of an employee with a whole family sick at home. If such an employee were forced, by a punitive system, to come to work, then the stress felt under such circumstances might manifest itself in carelessness, lowered productivity, deliberate sabotage, or total withdrawal from the work organization.

Controlling absence behaviour, and therefore personnel costs, requires that managers measure both the *extent* of the absence and its *cause(s)*.

FIGURE 1





(Steers and Rhodes, 1978)

Previous research has shown that certain types of absence, specifically short term, occasional absences for reasons other than certified medical illness or accident, are associated with job dissatisfaction. Other types of absence, such as certified medical illnesses, are associated with age, overall physical condition, and are not greatly influenced by job dissatisfaction. (Steers and Rhodes, 1979; Muchinsky, 1977; Garrison and Muchinsky, 1977; Steers and Porter, 1975). The various categories of absence behaviour which must be measured, if causes are to be identified and behaviours which management may control are to be separated from those beyond control, add much to the complexity of absenteeism measurement.

THE TYPES OF ABSENTEEISM WHICH SHOULD BE MEASURED

Each of the four reasons for measuring absenteeism, outlined above, dictates that certain types of absenteeism data be gathered. The type of data which would suffice for one reason may be insufficient, or excessive, for another.

For payroll and benefits administration the types of absenteeism which need to be measured will be related directly to the compensation system in the organization. If jury duty is paid for then absences for jury duty must be distinguished from personal absences incurred by someone who simply doesn't feel like coming to work. If sick pay, for absences in excess of three working days, is compensated then such absences must be flagged and notified so that the payroll department can arrange for compensation and have the appropriate account debited.

For manpower scheduling data requirements will also need to be tailored to the individual organization. The manager responsible for manpower forecasting will need to have data on the frequency of absence in meaningful units of employees such as work groups, departments, or divisions. The precise forms that such data will need to take will depend on the extent of interchangeability of personnel between these work units; however, data would not be needed on the cause of absenteeism for this purpose.

For the identification of absenteeism problems, data are needed in such a form that comparisons are possible between departments within an organization and between organizations. Finally, for the control of personnel costs related to absenteeism, data must be gathered in categories which are related *causally* to variables which management can control. The precise categorization of absence behaviour which would yield data to fulfil the requirements of payroll and benefits administration and manpower planning, is not within the scope of this article. The many variants in compensation systems and production operations make general classifications difficult. The remainder of this section will focus on the categorizations of absence behaviour necessary to facilitate comparisons between groups and to control the personnel costs associated with excessive absenteeism.

Researchers into absenteeism have long recognized that a single, global measure of absenteeism is almost useless in coming to grips with the reasons underlying absence behaviour. As early as 1951, one group of researchers who measured absence in a number of categories noted that:

"The most disconcerting result of this research is the discovery that absenteeism is such a non-unitary variable that certain types of absenteeism are completely unrelated to certain other types". (Kerr, Koppelmeier and Sullivan, 1951).

In the preceding section it was noted that absence behaviour may stem from a low motivation to attend, an inability to attend, or some combination of both. While higher motivations may compensate for a degree of inability, they are conceptually distinct reasons. For example, two people who wake up to a cold winter morning with considerable fresh snow on the ground may respond differently. One with a high motivation to attend work may get dressed, shovel out his driveway, and walk to work when his car doesn't start. Another with a low motivation to attend work may look out of the window, roll over, and go back to sleep. Yet a third employee, with as much motivation to attend as the first, may be running a high fever and feel too sick to get up and go to work. Clearly, this third person's absence is conceptually distinct from the other two.

The fact that they are conceptually distinct is illustrated by data from our Southwestern Ontario study (hereafter called the research site). Absence days were recorded over a 29 month period for each employee in one of eight categories: no-reports (employee did not show up for work or call the personnel department before shift started); single day illnesses without medical certificate; certified medical illness; certified non-work accident; work-related accident; personal reasons other than sickness; bereavement; and "other", consisting mainly of disciplinary suspensions. A correlational analysis of these data (see Table 1) showed that absences of the no-report, single day illness, and personal categories were moderately strongly associated. "Other" absences were also associated with these categories since the company gave disciplinary suspensions to employees who were frequently involved in such types of absence. However, there was a much lower association between the single day illnesses and the certified medical illness, or the personal absences and accidents (work related or domestic). The fact that these categories are only weakly associated is support for the idea that the underlying causes of each are different. Put another way, the employee involved in certified medical illness is not necessarily going to be involved in no-reports or single day, uncertified illness incidents.

TABLE 1

Correlations Between Days Absent for Different Reasons

	2	3	4	5	6	7	8
1. No. Reports	.40**	.15*	.22**	.01	.37**	.00	.22**
2. Uncertified Illness		.26**	.330**	.01	.48**	.11**	.32**
3. Certified Illness			.13*	.03	.19**	.05	.13*
4. Certified Accident (domestic)				.04	.16**	05	.18**
5. Certified Accident (work)					01	.03	.05
6. Personal						.19**	.34**
7. Bereavement							.02
8. Suspension (other)							-

The result of this and previous studies suggests that data on absenteeism be collected in the following categories:

- A. Certified medical illness
- B. Certified accident

**p < .001

- B1. Work related accident
- B2. Domestic accident

*p <.05

- C. Contractual absence
 - C1. Jury duty
 - C2. Bereavement
 - C3. Union activities
 - C4. Other
- D. Disciplinary suspensions
- E. Other absences
 - E1. No reports
 - E2. Personal or family reasons
 - E3. Uncertified medical illness or accident

Each of these major categories (A,B,C,D,E) represent conceptually distinct types of behaviour. The subdivisions of category C are useful in payroll and benefits program administration as well as in assembling aggregate data for comparisons, since not all organizations include or exclude all of them in their absenteeism computations. The subdivisions of category E are conceptually related to motivation to attend but may, for any single individual, be quite unrelated. Therefore, in exerting control at the level of the individual, it is valuable to have data on each.

The absenteeism data collected should be exhaustive. Information such as maternity leave and extended leaves of absence which may not fit into the above categories should be recorded and available for reviewers to use as they see fit. This would allow reviewers to decide how information to be classified or, in some cases, disregarded.

There is a temptation, because these categories have been established, to view them as totally independent of each other. For example, people may assume that all certified medical illness is legitimate and uncontrollable by management while all the absences in category E are illegitimate and controllable. The fallacy in this is well illustrated by the analysis of the results of an absenteeism control program instituted at the research site.

In 1976 management decided to "crack down" on what they regarded as "controllable" absenteeism; they felt that a high proportion of absences in Category E (no-reports, uncertified illness and accident, and "personal" absences) could be eliminated by drawing managers attention to absenteeism through monthly reports, sending bulletins to supervisors stressing the need for absenteeism control measures including counselling and discipline, disciplining employees identified as "chronic absentees" on the basis of previous records, and the institution of a safety incentive program in which perfect attendance was a prerequisite for participation.

A time series analysis of Category E absenteeism would on the surface, appear to indicate that this program achieved its objective. A trend analysis of 24 months of data showed that Category E absenteeism declined at the rate of .54 percent per year. Since, at the start of the period, absenteeism in this category was approximately 2.5% of scheduled work days, such a reduction was substantial. However, during the same time period, Category A absenteeism (certified medical illness) showed an increase of .43 percent per year thereby offsetting most of the reduction in Category E. In the absence of other explanations, such as epidemics or changes in contractual sickness provisions, one can only assume that the major impact of the absenteeism control program was to displace absenteeism from one category to the next. Employees who might have been no-reports, or who might have taken one or two days off because they weren't feeling well, went to a doctor and obtained a certificate because they would have been punished if they didn't. The dangers of "tunnel-vision", of restricting the analysis to one type of absenteeism, are apparent in this example.

BASIC AND SITUATIONAL DATA ABOUT ABSENTEEISM WHICH SHOULD BE GATHERED

The basic data which should be gathered must be related to the purpose for which the data is to be used. The data can be divided into two categories: the basic data which relate to the extent of absenteeism and the situational data which help in diagnosing the cause of absenteeism.

The basic individual absence data to be collected deals with absence *frequency* and *severity*. Frequency refers to the number of episodes of absence in a particular time period; severity refers to the percentage of days (or hours) that the employee should have worked which he or she missed because of absenteeism.

Example: Fred Smith was absent for 9 days in a 3 month period in which he was scheduled to work 62 days. 5 of the 9 days were episodes of one day duration, scattered among the 3 months. The other 4 days were taken consecutively and resulted from an accident on the line that Smith worked on.

Frequency = 5 per 3 months = 20 per year Severity = No. of days absent No. of days scheduled x 100% = 9 x 100 = 14.5%

Both of these measures, severity and frequency, can be broken down into their absence categories. Fred Smith's absence record for this period might then read:

Frequency	B1 = 1 per 3 m	ionths
	E = 4 per 3 m	onths
Severity	B1 = 6.5%	
	E = 8.0%	

Why measure both frequency and severity? Control of absence behaviour starts with the individual, and it is essential to know if individuals are incurring unduly high absenteeism. Neither the frequency nor the severity alone can tell this. An example from the research data again shows this quite clearly. Employee A had been absent for 30 days in a 30 month period: Employee B had been absent for 38 days in the same time period. Both of these employees were well in excess of the average of 22 days. Analysis of the severity (days lost) alone would appear to indicate that both employees were "problems". However, when the frequency was examined, a totally different pattern emerged. Employee A's absence consisted of only three episodes; one was a single day "no-report", one was a 14 day certified medical illness, and one was a 15 day certified domestic (car) accident. Employee B, on the other hand, had 18 separate episodes of absence; 7 were "no-reports", 5 were single day illnesses, 2 were "personal", 1 was a day off for jury duty, 2 were certified medical illnesses each of 8 days duration, and 1 was the result of a work related accident and was of 7 days duration. A comparison of absence records for these two individuals clearly shows that they represented different types of absence behaviour.

		Α	В	
Category	Fre	Freq. Sev.		eq. Sev.
Α	1	2.3%	2	2.7%
B 1			1	1.2%
B2	1	2.5%		
C1			1	.2%
C2				
C3				
C4				
D				
E1	1	.2%	7	1.2%
E2			2	.3%
E3			5	.8%
		5.0%		6.3%

The high number of incidents of occasional, non-certified absence by Employee B warrants attention by management whereas employee A's absenteeism, while above the average, may well be due to reasons beyond management control. As can be seen in Table 2, the association between episodes of absence and days of absence is high for certain categories, it is much less for others.

TABLE 2

Correlations Between Incidents and Days of Absenteeism in a 30 Month Period (January 1976 - June 1977)

INCIDENTS

		TOTAL	CONTROLLABLE	ILLNESS	ACCIDENT	BEREAVEMENT
	TOTAL	.72 (n = 272)				
5	CONTROLI	LABLE	.95 (n = 249)			
DAY_{2}	ILLNESS			.59 (n = 166)		
	ACCIDENT				.54 (n = 79)	
	BEREAVEN	IENT				.47 (n = 40)

All correlations are significant at p < .001

The need to record absence in terms of both episodes and days lost is also indicated by manpower planning requirements. The extended medical illness, where the employee reports that he or she will not be attending work for some specified period, is much easier to manage than the "no-report" or the employee who calls in five minutes before the shift is due to start and says that they won't be in to work. As well, episodes of absence for certain reasons are needed to evaluate the state of the operation in other dimensions such as safety and occupational illness.

For both absenteeism control and manpower forecasting purposes there is also some advantage to recording *partial* day absences, or tardiness. Indeed, in the company in which this research was done, first line supervisors indicated that tardiness was more of an operational problem that other forms of absence. At least if a person called in before the shift, or gave a few days notice of impending absence, the supervisor could scramble and find a replacement; the person who showed up late, where such lateness was unanticipated, often forced a line to run shorthanded, sometimes inefficiently. There is no conventional way for recording partial day absences that is widely accepted. The most common method found by the authors is to record absence as:

Late - less than one hour Late - one to four hours Late - more than four hours A lateness of one hour or less is recorded as an episode of absenteeism and the "days lost" is counted as 1/7 of a day. A lateness of one to four hours is considered to be a full day. However, because many firms who keep absenteeism data do not collect aggregate data on lateness, episodes of lateness and the days lost through lateness must be distinguishable from full day absences for purposes of interorganizational comparisons.

The second category of data which must be gathered are those situational factors that may be of value in diagnosing the causes absence. These data will to some extent, be specific to an organization but there are a number which should be collected for any absence episode. They include:

- a. The identity of the absentee
- b. The identity of the supervisor of the absentee
- c. The work group (line, department, etc.) the absentee was scheduled to work in when he/she went absent.
- d. The shift, the day of the week, the month, that the absence episode occurred.
- e. The stated reason for the absence episode.
- f. The duration of the episode.

Each of these variables is an aide in diagnosing the reasons for absenteeism. The identity of the employee will allow for the linking of absence behaviour to a number of personal variables which have been shown, in previous research, to be linked to absenteeism. With these data, managers will be able to see if absenteeism is concentrated among employees of certain ages, seniorities, job classifications, pay levels, and other variables which are recorded on employees' personnel files. The identity of the supervisor will allow the manager to see if absenteeism is concentrated among the employees of certain supervisors, indicating the need to look to the supervisory practices of that individual as a potential source of employee dissatisfaction and, hence, absence behaviour. Data on the work group will allow management to look at relative absenteeism in different work groups and perhaps identify aspects of the work group, such as size, homogeneity, work group norms, technology, difficulty or pleasantness of work, etc., that have been shown to influence absence behaviour in some way. Data on the shift, day of week, and month, will allow management to detect patterns of absenteeism related to these variables. An extensive amount of Monday/Friday absenteeism, for example, has been linked to job dissatisfaction or low motivation to attend. Seasonal patterns of absenteeism may be indicated and such data will be of value to the manpower forecaster. A concentration of absenteeism on one shift may be

evidence of heavy-handed supervision on the shift or, alternatively, of supervision which is too lax on another. On the other hand, it may be a function of the clash that exists between lifestyles of individuals and shift requirements. It is known for example, that young, single employees don't like working the afternoon (3-10) shift at the plant in which this research was done; this shift clashes with their social lives.

Just because such data on absenteeism are collected, there is no guarantee that management will be able to diagnose, with complete certainty, the reasons for absenteeism in a particular plant. The analysis and interpretation of such data is, as discussed in a subsequent section of this article, no simple and straightforward task. However, once the basic and situational data have been collected, they can yield much valuable information about the extent and the probable causes of some significant proportion of the absenteeism being experienced in the organization and will point towards action that can be taken both to cope with and control absenteeism.

METHODS OF DATA COLLECTION

Absenteeism data must be recorded accurately and consistently. Three sources of potential error need to be guarded against:

- 1. Errors resulting from the same individual being inconsistent about the way he or she records the same kind of absence. An example is the way a clerk may record a "no-report" as a noreport on Monday but may record it as a non-certified illness on a Tuesday. This may happen for a variety of reasons. The clerk may be careless, may not understand the definitions of each of the categories, may deliberately mis-code to protect the absentee, or may substitute his or her judgement when no reason is given.
- 2. Errors resulting from different individuals coding the same incident in different ways. There may be a lack of common understanding among them as to the definitions or conventions to be used, or some individuals may be predisposed to substitute one kind of label for another for a variety of reasons.
- 3. Errors resulting from one or a number of individuals recording absence among a certain group of employees differently than they would the same type of absence among another group. This may be done to protect a certain group of employees deliberately, or may result from the subconscious judgement that a certain group of employees would, or would not, behave in a certain manner.

Furthermore, since the reason for a specific episode of absence may not become known until sometime after the absence episode starts, there is a clear need for an editing and review process to ensure that the days absent reflect the reason for the absence. There are a number of ways in which these potential sources of error can be avoided; one such data collection method has been employed for blue collar workers in the research site for approximately three years.

- 1. When an employee calls in to report an absence the call is taken by the personnel office, for the day and afternoon shifts, or the security officer for the night shifts. The call is recorded on a three part form; the shift supervisor picks up one copy on the way into work and two copies go to the personnel department.
- 2. The second shift nurse collects all unused time cards for three shifts and matches these cards with the call-in slips. The time cards are coded with the reason for the employees' absence, according to coding instructions, or with a "no-report" code. They are then reviewed by the employee relations department for any reasons, such as jury duty, that may be unknown to the nurse.
- 3. The absenteeism data from the time cards are transferred to data sheets which are sent to the computer department on a weekly basis. Before they are sent, data are reviewed to ensure that the reasons have been correctly coded. If, for example, a person was recorded as a "no-report" on a Monday, called in sick on the Tuesday, and then showed up for work on Friday with a doctor's certificate excusing the absence, the data sheets would be amended to show that all five days were a single episode of "certified illness".
- 4. The time cards of absent employees are retained in the personnel department and an absence form is inserted in its place in the time card rack. When the employee returns to work this form must be filled in before the employee can claim his/her time card. This form provides a second check on both the duration of the absence and the employee's explanation for it.
- 5. The coded time cards are sent to the factory manager's secretary who notes the data on the employee's attendance record. These records are available to supervisors when counselling and/or discipline is being contemplated.

6. The personnel department provides daily and weekly absence lists to department supervisors and managers. The computer department compiles and circulates a monthly report.

This is, of course, not the only data gathering system that can be used although, in the absence of an existing system, it provides a good model to follow. It provides the necessary safeguards, by centralization of the data collection and editing and review process, against the sources of potential error described above. Reasons for absenteeism are coded and checked by the personnel department and reconciled with the employee's own written explanation of the absence. The editing process allows for the conversion of absence days into absence episodes while providing the opportunity to reclassify days and episodes in the light of information which might be available after the episode commenced. Finally, both the personnel department and line management are working with the same data base, an invaluable aid in pursuing a progressive counselling and discipline policy.

INDICES OF ABSENTEEISM

To this point it has been suggested that, at the individual level, absenteeism should be measured in terms of episodes and days lost for a number of different categories of absence behaviour.

At the aggregate level of the work group, line, department, division, or total organization, there are a number of indices which provide useful data for managers to estimate the costs of absenteeism and to measure the impact of absence control programs.

Gaudet (1963), described 41 measures of absenteeism indicating the values and drawbacks of each. We do not propose to go to that level of detail but, instead, to describe three simple indices and one compound index which should be of value to managers.

Managers typically ask four questions about absenteism:

- a. How many days of potential production am I losing because of absenteeism?
- b. How widespread is absenteeism among my workforce?
- c. How frequently does absenteeism occur in my workforce?
- d. How concentrated is absenteeism among my workforce?

The first three of these questions can be answered with the computation of a single index; the fourth requires the development of a more complex measure, a frequency distribution.

Lost Productivity

The lost production time can be measured with the INACTIVITY IN-DEX for the time period considered:

INACTIVITY INDEX = $\frac{\text{Time lost to absenteeism in period}}{\text{Time usually worked in the period}} \times 100\%$

In a month, for example, the "time lost to absenteeism in period" would be the number of days of absence; the "time usually worked in the period" is the number of scheduled days of work which, in most cases, would be the number of working days multiplied by the number of employees. In a number of studies of absenteeism reported in the literature, an approximation is made in the computation of "time usually worked in the period". The approximation involves using the average number of employees in the month, or the number of employees at the start, end, or middle of the month instead of the actual number of workdays scheduled. While this is a convenient approximation it can be extremely misleading where daily employment fluctuates significantly. A plant should be able to generate data on the number of actual scheduled days and the approximation should not be needed.

Extent of Absenteeism

Managers wanting to know how widespread absenteeism is in a certain time period should compute a PARTICIPATION INDEX

PARTICIPATION= No. of employees absent in periodINDEXAverage No. of employees in period

For any specific day, the PARTICIPATION INDEX will be the same as the INACTIVITY INDEX. The PARTICIPATION INDEX tells the manager nothing about the severity of absenteeism since an individual is counted only once in the time period whether he was absent for one day or a whole month.

Frequency of Absenteeism

Managers who want to see how frequently absenteeism occurs in their work units need to calculate the INCIDENCE RATE

INCIDENCE =	=	No. of episodes of absenteeism in time period
RATE		Average No. of employees in time period

The INCIDENCE RATE IS USUALLY EXPRESSED in terms of "episodes per 100 employees per year" so that the INCIDENCE RATE for a department with 730 employees and 72 episodes of absenteeism in the month of August would be:

 $\frac{72 \times 100 \times 12}{730}$ = 118.3 per 100 employees per year

The index tells the manager nothing about the severity of the problem since an episode may be of long or short duration.

Concentration of Absenteeism

A manager who finds a high INACTIVITY INDEX is left facing a problem. Does the absence arise from many individuals who are absent occasionally or from a few individuals who are absent frequently? The question is not just academic since the former would be indicative of some widespread problem(s) while the latter may indicate the presence of a few "bad actors". Some examination of the INACTIVITY INDEX in conjuction with the PARTICIPATION INDEX gives a feel for this issue, but is far from exact. The best way of answering the question is with a frequency distribution of absence in the work group. This identifies the proportion of employees who were absent for different lengths of time in the time period in question. This frequency distribution, together with some associated statistics, provides an indication of how widespread, severe, and concentrated the problem is in the specific work group. Such an analysis for one month in the research site used for this study is shown in figure 4.

Because of the non-unitary nature of absenteeism, the above indices alone are insufficient to assist the manager in identifying all of the potential sources of absenteeism. Of more use to the manager would be an information in system in which the absenteeism was broken down into its various categories, with trends and variances from previous data highlighted. Such information is shown in Table 4.

TABLE 3

Absenteeism Report: Dept. 4: August, 1978

DURATION OF ABSENCE (days)	No. OF EMPLOYEES	% OF EMPLOYE	No. EES EPISC	OF)DES EM	% OF EMPLOYEES	
0	40	53.3			53.3	
1	15	20.0	1		40.0	
2	10	13.3	2		6.7	
3	8	10.7	3		0	
4	2	2.7	4		0	
5 +	0	0	5		0	
Total days $absent = 6^{2}$	7	Total day	s scheduled =	1650		
		1978		19:	77	
	М	onth	Y.T.D.	Month	Y.T.D.	
INACTIVITY INDEX	κ 4	4.1%	6.3%	6.2%	7.3%	
PARTICIPATION IN	NDEX 46	5.6%	96.4%	38.2%	92.6%	
INCIDENCE RATE	480).0	379.6	493.3	456.2	

Managers and supervisors should be responsible for explaining unusual variances in these reports on a quarterly basis; sharp fluctuations from month to month make more frequent reporting of limited value. Any unusual variances from previously established patterns of absenteeism need to be explained. Such explanations may call for additional information, specifically the concentration data in the frequency distributions and, ultimately, the identification of the people involved in the absenteeism episodes from the monthly reports prepared by the personnel department. Managers and supervisors should be required to state what they are going to do about controlling absenteeism where it is higher than acceptable norms.

What is being proposed is, of course, a system that operates in much the same way as other systems common to line management. Managers have to explain variances in labour utilization, production quantity and quality, scrap materials, and many other components or outcomes of the production process. We hold the view that by measuring such variances and bringing them to the attention of managers they will be controlled. Absenteeism represents a significant cost to the organization and should be treated in the same way.

TABLE 4

Absenteeism Variance Report: Dept. 4: August 1978

	ILLNESS	ACCI	DENT	(CONTRA	ACTUAI	-	DISCIP.	отн	ER ABS	ENCES	
INACTIVITY INDEX	A	Bl	B2	Cl	C2	<i>C3</i>	C4	D	El	E2	E3	TOTAL
Month this year	2.3	.3	.5			.2		.2	.3	.1	.2	4.1
Month last year	2.8	.4	.7		.2	.4	.1	.3	.7	.3	.3	6.2
This y.t.d.	2.7	.6	.7	.1	.3	.3	.2	.2,	.5	.4	.3	6.3
Last y.t.d.	2.3	.7	.4	.2	.6	.6	.4	.3	1.0	.7	.1	7.3
Month difference	(.5)	(.1)	(.2)		(.2)	(.2)	(.1)	(.1)	(.4)	(.2)	(.1)	(2.1)
Year difference	(.4)	(.1)	.3	(.1)	(.3)	(.3)	(.2)	(.1)	(.5)	(.3)	.2	(1.0)
PARTICIPATION INDEX												
Month this year	22.3	1.5	4.5			1.5		2.3	4.5	10	2.3	46.5
Month last year	27.4	1.2	2.3		2.1	3.1	1.0	3.3	5.6	4.3	3.2	38.2
This y.t.d.	57.3	6.7	7.9	4.2	5.6	4.5	3.4	5.6	16.7	24.0	3.2	96.4
Last y.t.d.	61.2	8.5	4.6	6.7	8.9	7.8	6.7	7.8	15.6	22.7	5.3	92.6
Month difference	(5.1)	.3	2.2		(2.1)	(1.6)	(1.0)	(1.0)	(1.1)	(3.3)	(.9)	8.3
Year difference	(3.9)	(1.8)	3.3	(2.5)	(3.3)	(3.3)	(3.3)	(2.2)	1.1	2.7	(2.1)	3.8
INCIDENCE RATE												
Month this year	278	22	16			29		31	44	29	31	480
Month last year	281	24	18		8	36	8	32	40	23	23	493
This y.t.d.	235	20	14	8	8	22	10	15	27	7	14	380
Last y.t.d.	256	30	24	7	9	32	14	17	29	18	20	456
Month difference	(3)	(2)	(2)		(8)	(7)	(8)	(1)	4	6	8	(13)
Year difference	(21)	(10)	(10)	1	(1)	(10)	(4)	(2)	(2)	(11)	(6)	(76)

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INTERPRETING ABSENTEEISM DATA

Absenteeism data are used primarily for comparison; individual absenteeism records are compared with other individuals or with group averages; group absenteeism in one time period is compared with absenteeism in the same group in another time period; and one group may be compared with another group in the same time period.

We have suggested the need to measure absenteeism in a number of categories and also indicated the need to compute several indices of absenteeism, each showing different things. But even when such a detailed analysis is done, there remain a number of problems in the interpretation of absenteeism data and, hence, the conclusions that might lead to managerial actions are not always straightforwardly made. These problems can be divided into six types: data comparability, workforce stability, operational stability, seasonal patterns, economic cycles, and community influences

Data Comparability

The major issue in the comparability of data arises in the definition of an absence episode and the inclusion or exclusion of certain types of absence of certain duration. What is considered to be an absence in one company may not be considered as such by another, a problem which has plagued many efforts to generate industry-wide, regional, or national statistics (Miner, 1973). In some companies tardiness is included in absenteeism, in others it is excluded, in some companies absenteeism in excess of four or seven days are excluded, in others they are included; in some companies employees who are absent for more than a month are placed on an "inactive" list and are excluded from the statistics, in others they are included.

A second problem in comparability arises from different practices in computing the indices. The inactivity index requires that the number of scheduled work days (hours) be known whereas the participation and frequency indices require the use of "average number of employees". Both of these definitions are open to different interpretations and may not be the same from one organization to the next, or indeed from one plant within an organization to another.

With this variability in definitions and practices, managers have a difficult job ensuring that, in their comparisons, they are really comparing "apples with apples" rather than "apples with pears". To minimize this problem, it is recommended that:

- 1. Data be collected in a comprehensive and detailed manner including both tardiness, partial and full day absences, and all unscheduled absence for any reason including both short term and long term absence. It is easier, in making comparisons, to discard data that has been collected than to attempt to retrieve data that you did not collect but which is included in the statistics of the group with which you are making comparisons. The coding for an absence day and an absence episode which allows for subsequent elimination of superfluous data in any specific comparison is shown in Appendix A and Appendix B respectively.
- 2. When comparisons are made, the nature of the data included and excluded from the comparison group must be fully understood. There are all too many studies of absenteeism in the management literature in which the definition of what is included in the data is vague or even missing completely.

Workforce Stability

Research has shown that certain types of absenteeism are associated with certain characteristics of employees. For example, casual, single-day absences, tend to be associated with younger, highly educated, single employees whereas longer periods of absence, for certified medical reasons, are associated with older employees. Therefore, in any comparison of absenteeism between groups, or between different time periods for the same group, attention must be paid to differences between, or changes in, workgroup composition.

The impact of a sudden change in workforce was seen quite vividly in the research site. In June 1978, 60 new, probationary, employees were recruited to join an established workforce of 315. While on probation, absenteeism tends to be low, reflecting the fact that probationary employees are usually on their best behaviour. The inactivity index for June was only 3.1%, the lowest rate for the 30 month period that data had been kept. However, when the probationary employees were excluded from the analysis, the index for the permanent employees was shown to be 4.2%. The low month was primarily a function of the changed composition of the workforce which made comparisons between June and, say, May invalid. Attributing the low June figure to the absenteeism control program would have been misleading. This example suggests that:

When making comparisons of absenteeism between time periods, managers be alert to the possible influence of changed workforce composition and compensate for its effect.

In the research site, such changes in composition are quite common. They have been compensated for by computing two sets of indices, one for total employees and one for non-probationary workforce.

Operational Stability

While the workforce composition may vary from one time period to another, the manner in which the workforce is utilized may also change, making comparisons between time periods somewhat problemetic.

Another example from the research site illustrates this issue quite well. The workforce in four of the five departments usually worked a three shift pattern, five days per week, with shift rotation every two weeks. To meet strong customer demand, management decided to schedule Saturday work for the first time in a number of years. The participation index, which averages 4 to 5% daily in the company as a whole, jumped to 17% on the first Saturday on which work was scheduled. Despite disciplinary action against the absent employees, it did not go below 12% for the next three Saturdays and there was increased absenteeism during the weekdays. Although the company had the contractual right to ask employees to work Saturdays, and although they were paying time and half for the work, there were a sufficient number of employees dissatisfied enough to risk disciplinary action by taking the time off.

There are other forms of operational instability that may have an impact on absenteeism and which may, therefore, make comparisons between time periods quite difficult. They would include changes in shift patterns such as the movement from a two to a three shift operation, changes in product line or technology such as the movement from a light, clean, and pleasant task to a dirty, noisy, heavy, and generally unpleasant task. Such changes may have an impact on the employees' motivation to attend and, therefore, on attendance.

These sources of influence on absenteeism suggest that:

When making comparisons of absenteeism between time periods, managers be aware of changes in workforce utilization and compensate for them.

Seasonal Patterns

A fourth source of difficulty in interpreting absenteeism data arises from the possibilities of seasonal patterns of absenteeism, patterns which may affect one category of absence more than another.

There are few published longitudinal analyses of absenteeism data broken down by absence category. Therefore, one cannot say with any certainty, what patterns of seasonal absenteeism exist for the workforce as a whole. However, in the limited research data available in the company studied, certain patterns are becoming apparent. Absence for medical reasons, both certified and non-certified, increases in the winter months, reflecting the usual seasonal patterns of colds and influenza. Casual absence, on one or two day duration, is higher in the summer, school vacation period, as parents take time off from work to tend to family responsibilities. There appears to be some evidence of patterns of absenteeism in the weeks adjacent to statutory holidays, despite efforts to ensure attendance on these pre- and post-vacation work days.

Although the evidence is not strong, it is sufficient to suggest that:

In making comparisons between time periods managers take into account seasonal patterns of absenteeism that might be affecting the data.

Detecting such personal patterns will, of course, only be possible once a substantial amount of data are available.

Economic Cycles

Economic cycles are of much longer duration than seasonal cycles and, therefore, are unlikely to affect the comparisons between time periods for the same group. An exception, of course, is when a change in the cycle materially affects workforce composition or employees' feelings of security.

When jobs are chasing people, some employees might have a rather cavalier approach to attendance; rightly or wrongly, employees feel that they can easily find jobs elsewhere or, alternatively, that the company is unlikely to take any disciplinary action when jobs are plentiful. On the other hand, when there are many people chasing few jobs, employees may be quite concerned about keeping their jobs and, therefore, may be better attenders. There is evidence to suggest that absenteeism is higher among employees who have discretionary control over the amount of overtime they work (Mikalachki and Chapple, 1977). In "boom" times, with plenty of available overtime, employees may choose to go absent for a regular work day and make up the earnings during overtime periods when the rate may be one and a half to two times as high on an hourly basis. Furthermore, when incentive earnings are high during upturns in the economic cycle, economic theory would suggest that individuals may choose to trade-off some time for some money and may decide that they can make a sufficient amount of money while occasionally going absent.

Although we do not have sufficient data on absenteeism to support many of these relationships, they are intuitively appealing and are frequently mentioned by personnel and industrial relations managers. They strongly suggest that:

- 1. In comparing absenteeism in the same group between time periods, managers be alert to potential swings in the economic cycle that might influence absenteeism.
- 2. In comparing absenteeism between different groups and different time periods, managers be aware of local economic conditions, particularly as they affect the labour market, and their impact on absenteeism.

Regional Influences

There are regional factors which may affect absenteeism at certain times of the year and which may, in part, be reflected in seasonal patterns of absenteeism. Plants located in rural areas may, for example, expect high absenteeism in the harvest season as employees harvest their own crops or help out with friends and relatives who are harvesting. Or in company towns in which patterns of attendance have become established over a long period of time, great resistance may be found to any attempts to improve attendance since employees will have become used to using "unofficial" days off to attend to a variety of pleasures or chores. In a hunting or fishing community, the first day of the season may have assumed the status of an unofficial statutory holiday as many employees decide that they were willingly forego a day's pay to indulge their interests or hobbies.

Such regional influences are deep-rooted and exert powerful influences on individual behaviour. While they may be quite difficult to identify and measure, their existence suggests that:

In comparing absenteeism data between groups in different communities, the manager pays attention to community influences on absenteeism behaviour which might influence the data.

SUMMARY

In this article we have suggested that managers need to measure absenteeism in their organizations to administer payroll and benefits programs, plan and forecast manpower requirements, identify absenteeism problems, and measure and control personnel costs attribuable to absenteeism.

Managers must measure both the number of episodes of absenteeism and the days lost to absenteeism. Furthermore, to effectively measure and control absenteeism costs, they must subdivide absence behaviour into a number of categories each of which is conceptually distinct from the other although they may not be totally independent. Data must be gathered in such a way that these different types of absence can be identified and tardiness, partial, and total absence days can also be distinguished. In addition to measuring the basic absence, situational data can be gathered which may be of value in determining the underlying causes of absenteeism. The data must be gathered in such a way that they are free of errors introduced by inconsistencies in data collection and recording.

Three simple indices and one compound index of absenteeism are described. The INACTIVITY INDEX measures the extent of the loss of potential production time resulting from absenteeism; the PARTICIPA-TION INDEX measures the extent to which absenteeism is widespread among a group; the INCIDENCE RATE measures the frequency with which episodes of absenteeism occur in their workforces. A frequency distribution of absence days indicates the extent to which the days lost to absenteeism are concentrated among the workforce.

In the interpretation of absenteeism data, managers are urged to take into account a number of variables which may influence absenteeism and which might, therefore, make comparisons between the same group in different time periods, or between two groups in the same time period, difficult. Specifically, managers are cautioned to ascertain that the absenteism is being computed on the same basic data in the comparison groups or periods. To facilitate such comparisons recommendations are made to collect comprehensive and detailed data some of which may be discarded in a comparative analysis, rather than to collect sketchy, incomplete data, which may render comparisons impossible.

When making comparisons of absenteeism between time periods, attention should be paid to the possible influences of changes in the workforce composition or utilization, seasonal patterns, and economic cycles. In comparing absenteeism between groups in the same time period, care should be taken to identify local economic or community influences which may have affected absenteeism.

CONCLUSION

Absenteeism is not a unitary concept. Individual absence behaviour may have a number of causes, some affecting the employees ability to attend the workplace, others affecting his or her motivation to do so. Absenteeism in the aggregate is no less complex.

This article has not dealt with the issue of how to reduce absenteeism; that subject alone would take another article of comparable length to deal with adequately. Most personnel and industrial relations managers are aware of a variety of programs, using incentives, discipline, and counselling, that have been tried with varying degrees of success, claimed or actual.

We have focussed, instead, on some of the difficulties associated with measuring absenteeism. At the outset we promised to unravel some of the complexities in measurement. That was not a promise to make measurement easy. We see that the non-unitary nature of absenteeism dictates a number of separate measures, each relating to different aspects of the problem. The rewards from tackling a problem must be related to the benefits which might result from solving it. So it is with absenteeism. Measurement, because it is complex, requires an expenditure of some time and money in setting up data collection and analysis programs. The raw data exists in some form in almost all organizations since it is needed for payroll and benefits administration. However, to make it useful in manpower planning and forecasting and in personnel cost control, it may well have to be considerably refined. Once refined data are available, managers will have to spend further time in evaluating and interpreting the data and finding the root causes of absenteeism problems might well require further investment in personnel research, either by company personnel or outside researchers with expertise in the field.

What are the rewards for this effort? Hawk's (June, 1976) estimate that a 1% reduction in absenteeism is worth \$150,000 per year in reduced costs in a 1000 person plant is believed to be reasonable. How much absenteeism is controllable by managerial action? Estimates vary widely, but a number of absenteeism control programs have suggested that as much as one half of the absenteeism in a plant with an inactivity index of more than 8% can be eliminated by managerial action. Simple arithmetic suggests that a 1000 person plant with that kind of inactivity rate stands to gain \$600,000 per year through absenteeism control. It is certainly a substantial enough potential reward to encourage the majority of companies who are currently ignoring the problem to make the first step in absenteeism control - a commitment to measure it.

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APPENDIX A

ABSENCE DATA TO BE COLLECTED ON A DAILY BASIS

Name of employee: Employee identification number:

Date of absence:	Month						
	Day, Day of the week						
	Year						
Reason given for absence:	A Certified medical illness						
	B1 Work related accident						
	B2 Domestic accident						
	C1 Jury duty						
	C2 Bereavement						
	C3 Union activities						
	C4 Other contractual						
	D Disciplinary suspensions						
	E1 No report						
	E2 Personal						
	E3 Uncertified medical illness/accident						
Duration of absence day:	Less than 1 hour						
	1 to 4 hours						
	Full day						
Employee's scheduled work:	Line						
	Department						
	Shift						
	Supervisor						
	Regular, overtime						

APPENDIX B

ABSENCE DATA TO BE COLLECTED ON AN EPISODE BASIS

Name of employee: Employee identification number:

Date episode commenced:	Month Day, day of week Year
Date episode finished:	Month Day, day of week Year
Duration of episode: Duration of episode:	Working days Calendar days
Reason for absence:	 A Certified medical illness B1 Work related accident B2 Domestic accident

- C1 Jury duty
- C2 Bereavement
- C3 Union activities
- C4 Other contractual absence
- D Disciplinary suspensions
- E1 No report reason not known
- E2 Personal
- E3 Uncertified medical illness/accident

Employee's scheduled work:

Line

Department Shift (start of episode) Supervisor (start of episode) Regular, overtime (start of episode)

La mesure de l'absentéisme

Les chefs d'entreprise doivent mesurer l'ampleur de l'absentéisme en vue d'une meilleure administration des salaires et des programmes d'avantages sociaux, de la planification et du contrôle de leurs besoins en main-d'oeuvre, de l'identification des problèmes d'absentéisme, de la mesure et du contrôle des coûts de l'absentéisme. Mais le but recherché ici est plus précisément l'étude de la mesure de l'absentéisme.

Pour mesurer et contrôler efficacement l'absentéisme, les motifs d'absence doivent être subdivisés en plusieurs catégories bien distinctes les unes des autres. En plus de la cueillette des données, il est nécessaire de connaître les faits qui aident à identifier les causes de l'absentéisme.

Il y a trois indices simples et un autre plus complexe. L'indice d'inactivité mesure le nombre de jours de travail ou le temps perdu à cause de l'absentéisme. L'indice de participation mesure l'ampleur de l'absentéisme dans un groupe donné. L'indice d'incidence mesure la fréquence des périodes pendant lesquelles les absences se produisent chez un groupe de travailleurs. Chacun de ces trois indices contribue à expliquer les problèmes de l'absentéisme dans une entreprise.

Enfin, on expose les bases nécessaires pour comparer le taux de l'absentéisme à l'intérieur d'une entreprise et entre diverses entreprises. Il est impérieux que des comparaisons valables soient faites afin d'apporter à ce problème les remèdes qui s'imposent. Le premier pas à faire pour y arriver est de mesurer l'absentéime d'une façon exacte et systématique.