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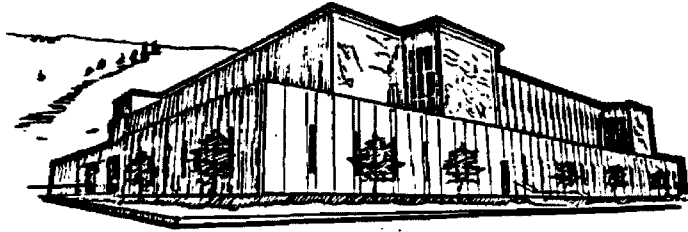
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University of
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THE MONTANA-WYOMING FOUNDATION FOR MEDICAL CARE
A WORKFLOW STUDY

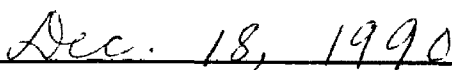
By: Ray Fuller
B.A. Carroll College 1989

Presented as partial fulfillment of the requirements
for the degree of
Master of Business Administration
12/5/90

Approved by


Chairman, Examining Committee


Dean, Graduate School


Date

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A NOTE TO THE READER

This paper is an academic exercise written by Ray Fuller. Its purpose is to partially fulfill degree requirements in the Masters of business program at the University of Montana.

This paper is being provided to the Montana-Wyoming Foundation for Medical Care as a suggestion for improving its work flow. This paper is being offered without charge.

It should be noted that the opinions in this paper are presented by the author and not by the Examining Committee. The Committee is grading this paper based on its academic merit and not by the soundness of its conclusions. The Committee wishes the reader to be aware that they do not necessarily endorse the contents of this exercise.

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I. INTRODUCTION

A. THE MONTANA-WYOMING FOUNDATION FOR MEDICAL CARE. ITS FUNCTION:

The Montana-Wyoming Foundation for Medical Care (the Foundation) is a professional medical review organization which performs utilization and quality review of medical services. Utilization review examines the appropriateness of the treatment for the diagnosis reported. Quality review investigates the treatment itself to insure proper procedures.

The Foundation is a private nonprofit corporation based in Helena, MT. servicing both public programs and private contractors. Its function is to determine the necessity, appropriateness, and quality of medical services provided to Medicare, Medicaid, Indian Health Service and private insurance patients.

The Foundation is one of forty-four Peer Review Organizations (PROs) in the United States and its territories. PROs are required by federal mandate to insure the proper medical treatment of Medicare recipients. The Foundation has 52 employees and utilizes 450 physician reviewers and peer advisors. Physician reviewers do not necessarily have the same credentials as the doctor who

handled the case being reviewed. A peer advisor has the same expertise as the doctor being reviewed.

Because of multiple contracts and the federal requirements that are set on the review process, the Foundation produces an immense paper flow. Over 1,100 new cases are generated each month. A case represents a specific patient's medical claim which is selected for review to monitor for proper utilization and quality of treatment. These cases can originate from eight different sources, (See Section III, The FLOWCHART-Review Sources.). Once a case is received it is routed through one of the nine review processes operated by the Foundation (See Section III, The FLOWCHART-Review Processes.). It should be noted that a single case may pass through several of the nine processes.

Cases generated for review can potentially pass among any of the 52 members of the Foundation staff and may be forwarded to any one of the 450 physician reviewers and peer advisors. Upon completion of the review, cases may then pass through any one of four audit procedures. These are designed to insure that proper procedure has been followed.

Given these statistics and the time constraints imposed by the Medicare contract, i.e., a maximum time allowed for case completion of 135 days, the complexity of the Foundation's task becomes readily apparent.

B. PURPOSE OF THE STUDY:

Janice Connors, Executive Director of the Foundation, is concerned with the current number of late and lost cases. A late case is one that exceeds the time limits designated for completion in the contracts. A lost case is one that cannot be found within the system.

In 1989, the Foundation processed 7000 Medicare cases. Of these, 286 (4%) were missing and 1400 (20%) were late. These cases had an average revenue potential of \$25 apiece. Since the Health Care Financing Administration which grants the Medicare contract to the Foundation reserves the right by contract to withhold funds when cases are late or lost, the Foundation was in a position to lose \$42,150 in Medicare funding. This represented almost 25% of the Medicare funding for case processing. It should be noted that this policy has never been exercised but recent events point to an imminent change. Should this occur the Foundation is in a position to lose a large amount of revenue.

The Executive Director believes that a major contributor to the problem is inadequate case tracking among the multiple participants in the review process. This tracking problem is compounded by cases passing through simultaneous processes, and by cases being re-opened after completion. The Foundation currently utilizes four computerized tracking methods. They have not proven effective for several reasons. Three systems are designed to

track only specific types of cases and the other system has been circumvented by some staff members in an effort to save time. In addition, these systems include some duplication of effort and as such cannot be considered efficient. The four computerized tracking systems currently in use will be explained in more detail later in the paper.

This situation has led the Executive Director to request three areas of concentration for this study (See Appendix A.):

1. Analysis of the current system to ascertain the scope the problem.
2. Development of a new system designed to locate any case at any point and at any time it is in the system.
3. Development and performance of a cost-benefit analysis to insure that a proposed solution is cost effective.

II. STATEMENT OF THE PROBLEM

A. DEVELOP A NEW SYSTEM TO ADEQUATELY TRACK AND RETRIEVE CASES IN THE REVIEW PROCESS:

The primary purpose of this paper will be to study the current system in an effort to identify problems in the tracking systems and to devise a new system that will eliminate the problem of lost files.

In addition, this new system will be designed to contain reminder prompts in an effort to alleviate late

cases in the system. Each case is assigned to one of nine specific review processes. These processes contain specific designated time frames for each step in the process (See Section III, The FLOWCHART-The Complexity of the Task.). By tracking each case through the processes and timing each step, reminders can be given to prevent a specific station in the process from neglecting a case and causing it to be late.

Because of the volume of cases processed at the Foundation and its multiple contracts, this paper will be limited to the Medicare portion of its review process.

B. SIMPLIFY THE FILING PROCESS:

The Foundation is located on two floors in an office complex. Its main filing location is located on the lower floor while the review systems are on the upper level. Getting case files between floors can be cumbersome and time consuming. Because of this situation, many employees have devised their own means to eliminate time used in requesting files from and returning files to the lower level. This practice has produced piles of cases at various work stations that cannot be traced or located because they are outside the normal system and tracking procedures.

For a new system to be effective this situation will need to be eliminated.

C. CHANGE WORK-STATION LOCATIONS:

Since the Foundation occupies two floors, the location of various processes can have a great impact on the timely completion of a case. Carrying cases and transferring complex information can take a great deal of time. Since the Executive Director is concerned with late as well as lost cases, a section will be devoted to duty locations in an effort to streamline the Foundation's review process.

III. RESEARCH CONDUCTED AND THE RESULTS

A. THE FLOWCHART:

A flowchart of the Foundation's Medicare functions was prepared to help clarify processes. The Foundation's Executive Director and Foundation employees provided input through personal interviews. A rough draft was prepared and verified with the employees before the final version was constructed. These steps have helped assure that an accurate picture of the process was portrayed. An accurate picture of the existing system is essential before changes are recommended. The following is a synopsis of the findings from the flowchart research:

1. Review Sources - Medicare review activity can originate from eight different sources (see Appendix B1):

- a. The Fiscal Intermediary (FI)/Carrier tapes
- b. Beneficiary complaint
- c. Hospital Initiated Notice of Non-coverage
- d. Congressional Inquiry

- e. FI Referral/Regional Office Referral
- f. Intervening care review
- g. Pre-pay review
- h. Hospital requested Diagnostic Related Group (DRG) change

a. The FI Tape/Carrier Tapes - The Fiscal Intermediary (FI) tape for Montana is generated in Great Falls by Blue Cross and Blue Shield of Montana. It is a compilation of all the Medicare hospital inpatient claims for the state of Montana and is generated on a weekly basis. This tape is sent to the Foundation where it is randomly sampled for review cases. This tape is also focus sampled for areas of concern. A focus sample is instituted when a particular diagnosis seems to be increasing. This diagnosis is programmed into the computer which then automatically selects those cases from the tape for review. The FI tape for Wyoming is compiled by Blue Cross and Blue Shield of Wyoming and is generated in Cheyenne. This tape is also sent to the Foundation office in Helena on a weekly basis.

The Montana Carrier Tape is a compilation of physician claims for the entire state. It is compiled by Blue Cross and Blue Shield of Montana from their Helena office and is mailed to the Foundation on a monthly basis. A Carrier Tape is also compiled for Wyoming. It is generated by Blue Cross and Blue Shield of North Dakota in Fargo, then sent to Helena for Foundation review.

b. Beneficiary Complaint - This review source originates in Medicare recipients who are dissatisfied with their medical treatment. They may be received from Medicare recipients directly, or they may be forwarded from the FI or the hospital or facility providing care. These complaints may deal with any aspect of the service provided but do not address payment of benefits.

c. Hospital Initiated Notice of Non-coverage - These notices are given to a Medicare beneficiary by a hospital representative. They inform the patient that the current level of care is no longer required. If the patient chooses to stay, Medicare does not cover the expenses.

A hospital must have an attending physician's approval to initiate this notice. If the facility cannot obtain physician concurrence on a continued stay denial notice, the hospital can ask the Foundation for a review. In addition, the hospital must inform the beneficiary in writing that a review has been requested. This review must be expedited or the hospital may lose money from a needlessly prolonged stay.

If the hospital issues a notice of non-coverage to a beneficiary, the beneficiary has the right to appeal. If the review findings are appealed while the patient is still in the hospital, the Foundation has two days after receipt of the records to handle the appeal. If, however, the patient is being discharged, the beneficiary has a right to

a "Noon Appeal". This means the appeal must be filed by noon the day following receipt of the notice of non-coverage. The Foundation would then request records and have until noon the day following receipt of the records to complete the review. The patient continues to receive benefits until the appeal is decided.

If an appeal is requested after discharge from the facility the beneficiary must appeal within 30 days. The Foundation then has 30 days to reach a decision.

If hospital initiated notice of non-coverage is discovered during the normal review process of the Foundation, it is automatically reviewed to insure it was appropriate.

d. Congressional inquiry - This review is initiated by a member of Congress, who has a question about a Medicare case. The concern is usually generated by a complaint from a beneficiary, family, a hospital or a doctor.

e. FI Referral/Regional Office Referral - FI referred cases involve utilization review issues, i.e., when a patient is hospitalized twice for the same diagnosis in a short period of time. A review is performed to ensure that the provider is not trying to obtain two payments for the same episode of care. Regional Office referrals are another form of beneficiary complaint, and are handled in the same manner as a beneficiary complaint. In this situation the beneficiary would register a complaint with Regional Office

in Denver, and the complaint would be forwarded to the Foundation.

f. Intervening care review - This review deals with care given to a Medicare recipient between two hospital admissions. It includes care given in skilled nursing facilities, home health agencies and hospital outpatient facilities within 31 days of hospital admission. These cases are received from Central Office in Baltimore, Maryland. Central office is a term used for the Health Care Financing Administration's unit which administers Medicare contracts to the Peer Review Organizations like the Foundation. The cases are sent through a computer link between Baltimore and Helena.

g. Pre-pay review - A pre-payment review is initiated when a provider does not obtain the necessary pre-certification on designated cases. Twelve surgical procedures require pre-certification. Pre-payment reviews require providers to send the medical record to the Foundation for review.

h. Hospital-Requested DRG change - Hospital reimbursement is based on the assignment of correct codes and DRGs (Diagnostic Related Groups). When a hospital discovers an incorrect DRG assignment after it submits the bill, it can request the Foundation to review its identified DRG change. This is done by submitting the complete medical record to the Foundation.

2. Review Processes - The eight review sources described above can lead to one of nine review processes depending on the type of case (See Appendix B1.). Some cases may proceed through more than one review process and may be in more than one process at the same time. The case may pass through more than one process if it has more than one reason for being reviewed. An example would be a case that has a failed generic screen and also needs a coding change. A case may go through processes simultaneously if separate administration of the processes would cause a late case. The possible processes are:

- a. A clean case review
- b. Failed generic quality screen, no-problem
- c. Failed generic quality screen, Pend 1
- d. Failed generic quality screen, with-problem
- e. Utilization review denial
- f. Technical denial
- g. Coding change
- h. Review coordinator, questions/problems
- i. Off-site physician advisors

a. A clean case review - These cases are the simplest type. They are taken from the FI or Carrier Tape. There are no apparent problems identified from the nurse reviewer's or physician advisor's review. These cases require completion within 60 days.

b. Failed generic quality screen, no-problem - This occurs when a case fails a quality screen (a series of criteria used in the review) but a nurse reviewer or physician advisor determines there is no problem.

c. Failed generic quality screen, Pend 1 - This occurs when a case fails a quality screen and is determined to have a potential problem but the patient was not harmed. A severity level is assigned. These cases are not completed but are pended for three to six months to determine if there is a pattern with the facility or the physician. The search for a pattern is computerized and seeks similar problems for the same facility or physician during a designated time frame.

d. Failed generic quality screen, with-problem - This occurs when a case fails a quality screen and a problem is identified which has potential for patient harm. These cases are automatically peer reviewed and monitored for patterns. The responsible party, the attending physician and/or provider, is notified of this process.

e. Utilization review denial - This is a denial of admission, length-of-stay, surgical or invasive procedures, or provider charges.

f. Technical denial - Technical denials are issued when a provider does not submit a requested medical record, makes a billing error, or does not have the appropriate physician attestation signed. Reversed technical denials are issued when providers submit the medical record or a signed attestation. Billing errors are corrected by direct submission to the FI or carrier.

g. Coding change - Cases enter into the coding change process when the nurse reviewer identifies that inappropriate diagnostic or procedure codes were assigned by the provider.

h. Review coordinator, questions/problems - Cases enter this process when monitoring identifies problems or questions with the review coordinator's activity and it is prudent to further educate the coordinator to facilitate correct review.

i. Off-site physician advisors - This review process occurs when the review coordinator does not have a local on-site physician advisor to whom the case may be referred. Referrals are made when the coordinator does not feel qualified to determine the appropriateness of a specific treatment or diagnosis. The coordinator returns the case to Helena and it is then sent to an off-site physician advisor.

3. The Complexity of the Task - If a case is generated from an FI/carrier tape and results in a failed generic screen, with-problem (the longest review process at the Foundation), it may pass through 57 different processes and change hands 36 times before completion (See Appendix B2.). In addition, the case would be monitored by three of the four different tracking systems. This multiple tracking was not planned but evolved from attempts by the Foundation to monitor its work-flow.

The initial tracking system was called Record Tracking. It was designed to track cases with medical records attached as they flowed in and out of the Foundation. This system did not do any internal monitoring. A second system was devised for the Quality Assurance Technician to keep track of cases that were pended (cases from which patterns are sought). This system is checked when internal cases need to be found. Since this system does not contain every case it was not sufficient to do internal tracking.

The third system used to monitor cases is used by the Denial Technician and is similar to that of the Quality Assurance Technician. This system is utilized to track cases that deal with the Denial process.

The last system was instituted in March of 1990. This system requires that records pass through it whenever they change work-stations. Employees are instructed to give the cases to the tracking station with directions to the next destination. The tracking clerk enters the information into the computer and forwards the case to the proper station.

Several problems exist with this latest system. Although it was designed to be a comprehensive tracking system to facilitate immediate location of cases, the other systems are still utilized. Each of these tracking systems requires a certain amount of time to initiate and as a result, more time is spent on tracking than is necessary. According to the tracking sheets used in this study, this

new process can take from one to three days (See Section III, Case Tracking.). This single tracking system alone could account for 18 extra days in the above process if it used only one day each time a case passed through the station. Another problem with the new tracking system is that people are avoiding the process because of the time consumed in using it. Because of this, it has not become the comprehensive system that was intended. To better understand the relevance of the current Foundation tracking systems, a discussion of the time constraints in case review is necessary.

Most Medicare cases with a problem, including the above example, have 135 days to be completed. This constraint includes mandatory time sequences for various processes:

- 15 days to create and mail the review worksheet
- 30 days for the hospital to provide the medical record
- 15 days for review coordinator and physician advisor review
- 30 days for peer review and comments (if referred)
- 30 days for mandatory pending while awaiting the attending physician's response (This gives the physicians whose work is being scrutinized an opportunity to defend their actions)
- 15 days for peer comments if the attending physician responds (This gives the peer a chance to consider the attending physician's response)

Thus, a total of 135 days may be needed to satisfy the requirements for a problem case.

Not all the cases will utilize the entire allotted time. However, many use the allotted time and more. If the entire time is used, it leaves no time for the following

operations:

- a. The case to be mailed to the coordinator
- b. The case to be returned to the Foundation
- c. A case to be sent to the peer for review
- d. Original comments to be typed or transcribed
- e. Original comments to be proofed
- f. Corrections made to the comments
- g. Foundation Medical Director to approve comments
- h. Initial letters to be typed and sent
- i. Attending physician's comments to be typed, corrected and approved by the Foundation's Medical Director
- j. Case to be returned to peer to review attending physician's comments
- k. Peer response to be typed, proofed, corrected and then approved and scored by the Medical Director
- l. Final letters to be typed and mailed
- m. Tracking of the entire process

When the 135 day time limit is considered, the probability of late cases is high. As a result, efficiency in the tracking system is necessary to help alleviate the time problem.

The forgoing indicates the complexities of the Foundation's activities and the need for an effective and efficient tracking system.

B. OFFICE LAYOUT:

The Foundation is located in an historic building in downtown Helena. Formerly the Placer Hotel the facility is now known as the Placer Center. The Facility has seven floors and the Foundation occupies the majority of the second floor and a portion of the basement.

The upper level is occupied by retrospective review

staff, pre-admission staff, the computer complex and the in-house review coordinators (See Appendix C.).

The lower level is utilized by the receptionists, filing personnel, the secretaries, and the mail room/copy room (See Appendix C.). The separation of these functions by the first floor can hinder efficient daily Foundation operations, i.e., file retrieval, telephone messages, typing and transcription. Mailing of urgent letters can be delayed. Because of the distance to filing and the form that must accompany requests, some employees have developed their own files in an effort to save some time and effort. This has made case tracking even more difficult.

Because of the necessity of using two floors and the complexity of the work flow, a later section of this paper will consider office layout options.

C. PERSONAL INTERVIEWS:

In recognition of the importance of obtaining input from employees, 17 personal interviews were conducted in March of 1990 to gain insights regarding late and lost cases. Information from these interviews was also used to prepare the flow chart of Foundation activities.

The following is a list of the job titles of employees interviewed (See Appendix D.):

- Executive Director
- Assistant Executive Director Programs
- Quality Assurance Coordinator
- DRG Coordinator

Supervisor of Review Coordinators
 Data Manager
 Medical Review Assistant
 Assistant Manager
 Denial Technician
 Quality Assurance Technician
 Medical Records Clerk
 Community Outreach Clerk
 Data Entry Clerk
 Office Technician
 Office Manager
 Medical Records Technician
 Computer Consultant

Each employee was asked to respond to these questions:

1. What problems do you see with the current review system?
2. Do you have any ideas for improving the system?
3. How would you implement your ideas?

Of the three questions asked, the first and second received responses from almost everyone. However, the third question was responded to by most employees with an "I don't know". The following is a summary of employee responses:

1. What problems do you see with the current review system?
 - a. The tracking system is cumbersome and has shown limited efficiency.
 - b. The Foundation is understaffed, which causes a heavy workload and more mistakes.
 - c. Even with tracking there are too many lost cases.
 - d. The coordinators in the field and the physician reviewers and advisors take too much time and cause late cases.
 - e. Reports generated from the computer are not always accurate. This means that time must be spent correcting data errors.

- f. The systems currently used are very complex and utilize many people. They need to be simplified so fewer people handle the cases.
- g. Review coordinators need more education updates so they can comply in a more timely manner.
- h. There is too much duplication of effort. This is true from tracking to the process of reviewing itself.
- i. The Foundation needs to have more networking for its computer system. More access is needed to the System 36.
- j. Too many people are responsible for final entry which can cause errors or problems.
- k. The secretarial staff is not large enough. Too much time is spent waiting for work to be processed.
- l. Not enough checks and balances in the system. Cases need to be tracked to recognize timing problems before they happen.
- m. It takes a long time to get requests from computer people.
- n. More people need computers to expedite the work-flow. Routing within the office is too cumbersome. Records can sit for days on a desk just to be routed.

2. Do you have any ideas for improving the system?

- a. Hire more staff.
- b. Give cases a control number to make the tracking process easier.
- c. Work-flow needs to be simplified. A good analysis needs to be done.
- d. Bar coding could speed the processing time.
- e. One tracking system instead of the current multiple system.
- f. Copy the records to expedite multiple processing.
- g. Cross training of employees would ease the burden when people are not at work.
- h. Network the computers to provide more access to the System 36.

- i. Get a better copier upstairs. This will save wasted time filling out requests, etc.
- j. Get the managers computers to help monitor their work and the work of their subordinates.
- k. Records need to be timed as they progress through the system in order to minimize late cases.
- l. More in-house review.

3. How would you implement your ideas?

- a. Implement bar coding.
- b. Network computers to the System 36.
- c. Hire more people and improve the training process.
- d. Use fewer peers and concentrate on the timely ones.
- e. Purge and update the current file system.
- f. Buy more computers for the management staff.

Some responses were mentioned several times while others were given only once. The purpose of the listing is to facilitate a better understanding of the employees' perceptions, and to build on their ideas where appropriate.

D. CURRENT COMPUTER SYSTEM:

The Foundation utilizes an IBM System 36 for its retrospective review as well as its pre-admission activities. Because of the volume generated by its activities, the Foundation is experiencing a computer capacity problem. Most of the system's 660 megabyte capacity is utilized for retrospective review. As a result, only 12 months of pre-admission data can be carried instead of the

three years that the contract requires. A secondary storage system is used to store the other two years' data.

The current System 36 consists of the central unit and 13 terminals. Four of these are strictly entry/retrieval terminals and nine are PC/36 combinations which allow employees to perform functions not related to the System 36 but give them access when necessary (See Appendix C.). In addition to the System 36, the Foundation utilizes 10 IBM PC's (see Appendix C). These PC's serve independent purposes and are not networked. The current system is assigned in the following way:

1. Data Manager
 - a. PC/36 - Prof generation (A prof is a page of data which is sent to Central Office so payment can be received)
 - b. PC/36 - Data processing

2. DRG Coordinator
 - a. PC - Not on line

This computer, if on line, would be used to track DRG changes. If utilized, this would be the 5th computer tracking system at the Foundation. It is not on line because the necessary wiring is not in place to make it function.

3. QA Technician
 - a. PC/36 - Final entry/Pending cases/Tracking
4. QA Clerk
 - a. PC - Word processing
5. Denial Tech.
 - a. PC/36 - Final Entry/Pending cases/Tracking
6. Data Analyst
 - a. PC - Data Analysis
7. Computer Analyst
 - a. PC/36 - Program Generation

- | | |
|---------------------|---|
| 8. Finance Manager | a. 36 - Accounting
b. PC/36 - Accounting
c. PC/36 - Accounting |
| 9. Tracking Clerk | a. PC - Case tracking |
| 10. Med Rec Clerk | a. PC - Case tracking |
| 11. Office Manager | a. PC - Word processing |
| 12. Secretary | a. PC - Word processing |
| 13. Outreach Clerk | a. PC - Word processing |
| 14. Receptionist | a. PC - Word processing |
| 15. Data Entry | a. PC/36 - Data Entry
b. PC/36 - Data Entry |
| 16. Prof Generation | a. PC - Prof Generation |
| 17. Pre-admission | a. 36 - Pre-admission
b. 36 - Pre-admission
c. 36 - Pre-admission |

Key managers (Assistant Executive Director of Programs, Supervisor of Review Coordinators, Quality Assurance Coordinator) at the Foundation do not have computers. As a result, managers perform a significant amount of manual checking in their managing effort.

E. CASE TRACKING:

As part of the Medicare review study conducted in this project, a tracking sheet was devised to accompany cases through the processes (See Appendix E.). This sheet included a brief description of the project and a request to fill in the blanks of the sheet with name, date received and date finished. This tracking sheet was attached to the worksheet

for the case, and was to accompany it through the review process. In addition to the description and directions on each tracking sheet a meeting was held with the Foundation staff to explain the process and answer questions about the process. It was anticipated that these tracking sheets would provide insight about timing at various stations. Problem areas could then be targeted.

Forty-five tracking sheets were attached to worksheets generated between April 10, 1990 and April 24, 1990. The cases chosen were taken from the weekly Montana and Wyoming FI tapes received at the Foundation. A 3% random sample was selected for review purposes. On April 10, 1990, seventeen tracking sheets were attached to the first 17 cases chosen from the Montana tape. On April 17, 1990, twenty two tracking sheets were attached to the first 22 cases selected from the Wyoming tape. On April 24, 1990, six tracking sheets were attached to the first 6 cases chosen from the Montana tape.

The 45 tracking sheets yielded the following:

- 13 - Completed tracking sheet with worksheet attached
- 17 - Completed tracking sheet with no worksheet
- 4 - No tracking sheet but worksheet in file
- 8 - Completed tracking sheet but wrong worksheet attached
- 2 - Incomplete tracking sheet with wrong worksheet attached
- 1 - Lost tracking sheet and worksheet

45

The 13 tracking sheets completed properly show that the reviews took from 25 to 71 days to complete. Six were referred to a physician advisor. None exceeded the designated time constraints specified in the Medicare contract.

Since only 13 of the tracking sheets were completed in the designated manner, it is not possible to draw definite conclusions. The 17 completed tracking sheets with no worksheets were not matched to the assigned files because it could not be assumed that the tracking sheets had actually accompanied the worksheets.

Although this portion of the study did not yield the expected results, it did yield valuable information about the in-house worksheet tracking system instituted by the Foundation in March 1990. It should be noted that a single case may pass through worksheet tracking numerous times from its inception to its completion. According to the dates on the 40 tracking sheets returned, the tracking process was handled on the same day 77% of the time. The process was completed the following day 17% of the time, and 6% of the cases required 2 or 3 working days. No cases took longer than three working days.

Although this processing time may not seem significant, given the timing requirements imposed by the Medicare contract, days spent in tracking present a potential

deterrent to timely completion. This issue will be dealt with in greater detail in the following section.

IV. OBSERVATIONS, ANALYSES, AND RECOMMENDATIONS

The Foundation's current problem of late and lost cases is not the result of any single problem area. This section will identify problem areas, briefly analyze the problem, and present recommendations that will improve the timeliness of the Foundation's review process.

A. OBSERVATIONS AND ANALYSIS:

1. The location of the Tracking Department may hinder effective tracking and record location - At the present time, the Tracking Department is on the second floor, and filing and mailing are on the lower level. Because of this, cases are sometimes filed or mailed without first passing through tracking. As a result, the Tracking Department has limited capability of assuring that cases for which it is responsible pass through the tracking process.

2. Part of the complexity in case tracking is the amount of information needed to access a case - Currently three pieces of information are needed to locate a case--the HIC number (which is usually the Social Security number), the provider number (hospital), and the admission date. These three numbers require the use of 21 digits. If any

digit is wrong or missing, a case cannot be easily located, or may not be located at all.

3. The Foundation utilizes four tracking systems, but none is comprehensive - The four systems currently in use are:

- a. Record Track
- b. Worksheet Tracking (Since March 1990)
- c. Quality Screens Tracking
- d. Denial Tracking

a. Record Track - This system is designed to track medical records coming into and flowing out of the Foundation. This system is not designed to track internal cases or those without medical records. The flowchart indicates it is frequently not utilized when cases are mailed out of the Foundation. This produces an ineffective system for retrieving and timing cases.

b. In-house worksheet tracking instituted in March, 1990 - This system is designed to track all worksheets, with or without medical records, coming in and going out of the Foundation, as well as tracking internal location. It does not appear to be completely effective for several reasons. Timing data obtained from case tracking forms indicate this process can take from one to three days to move a record between stations. In addition, the entry person responsible for this tracking system believes that some worksheets are not being routed through that station for tracking. Employees by-pass the system because of

concerns with delays and potential misplacing of cases. Consequently, this system does not provide the dependability needed to locate or time cases within the system.

c & d. Quality Assurance Technician and the Denial Technician Tracking - These two systems are used to track records that pass through these specific stations. These systems do not contain every case, hence reliability for tracking and timing is not possible.

With the existing tracking systems, employees usually must check more than one system in an effort to find a record. Because no one system encompasses a comprehensive tracking process, the systems are prone to circumvention and some cases may not be tracked at all.

4. The filing practices at the Foundation may hinder the work-flow and hence the timely completion of the review process -The Foundation currently utilizes a main filing system, and several sub-systems for denials and quality screens. At the present time, the main filing system located on the lower level, is used for filing completed cases. Sub-files have been set up on the upper level to file recently reviewed cases that are pended. The result is a significant amount of time spent trying to locate a late or lost record because several file locations must be checked.

5. Current duty locations may be hindering efficient work-flow and as a result may be causing timing problems - The Foundation's functions require that many people process

and handle a single case as it progresses from its generation to completion. Several key work-stations at the Foundation need to be in closer proximity to each other to insure an efficient work-flow. These work-stations and their locations will be discussed in the Recommendation section that follows.

6. Final entry of review results may be done from different locations for the same case. This may be a source of delays - Currently, final entry is done in Data Entry, at the Quality Screens Station and at the Denials Station. In several review processes the case is sent to Data Entry for partial entry into the System 36 and then returned to one of the other two stations for completion. The risk of the case becoming late or lost is increased because of multiple handling and the time a case spends at each station waiting for entry.

B. RECOMMENDATIONS:

Based on the foregoing observations, the following recommendations should be implemented to improve the timeliness of the Foundation's review activities:

1. Combine the filing and tracking procedures - If tracking and filing were merged on the lower level with a computer link to the upper level, a more reliable tracking system could be implemented. Records and worksheets received at the Foundation could be routed through filing and

tracking to be matched with relevant files, entered into the tracking system and timed. Any records or worksheets being mailed out could be routed through filing and tracking for the same reasons. The result would be elimination of the circumventions of the tracking systems that the Foundation is currently experiencing.

To accomplish this it is recommended that the Medical Records Clerk be moved to the lower level to join the File Manager. The current Tracking Clerk should be repositioned upstairs to facilitate in-house-tracking (See Appendix F.). These three would form the new Filing and Tracking Department. This department should have a manager to ensure accountability. The employees should be cross-trained so tracking and file location can continue in case of absences.

In addition, a system should be implemented to assure compliance with the tracking system. This can be accomplished by issuing special stamps to all work-stations to be used on the back of all incoming, outgoing, and in-house worksheets indicating they have passed through the proper channels. These stamps should include date and work-station. The mail-room would be advised not to forward materials that are not stamped by Tracking. No cases or worksheets would be distributed to the upper level without the tracking stamp. Cases would not be filed without proper stamping. These stamps would facilitate 100% tracking which should be the Foundation's goal. An additional benefit to

this system would be a record of a case's progression through the system.

2. Assign a case tracking number to simplify the review process - Assigning a tracking number to each case when the worksheet is generated would simplify tracking and improve locating rates.

The tracking number would not only simplify the access procedure, it could be designed to provide case information. For example, it may be beneficial to know the year the case was generated since the Foundation is required to keep records for three years. Hence the first two numbers in the tracking number could indicate the year.

The Foundation processes approximately 7,000 Medicare cases annually. In addition, it services Medicaid and Indian Health contracts and several private contracts. Given this case load the Foundation could easily generate 10,000 cases per year. Providing a unique number for each case would use another five numbers in the case tracking number.

The case tracking number should also identify the type of case--"1" could signify Medicare;"2" could signify Medicaid, etc. Thus an eighth digit would be needed in the case tracking number. Using an eight digit tracking number would shorten entry time and reduce the possibility of errors. It would also be easier to compile data on cases from a particular source.

The case tracking number could be expanded by two digits to provide case location information.

3. Use one tracking system with bar coding - The four tracking systems currently used should be consolidated into a single system which would fulfill all of the case tracking requirements. The new system would place the Medical Record Clerk, who is currently responsible for Record Tracking entry, in the pivotal position of developing and entering the case tracking number. The location of this activity should be shifted to the lower level to facilitate workflow.

Bar coding of worksheets should be used in the new tracking system. This would save time and reduce errors. Worksheets would still be generated in Data Processing and transferred to the Filing and Tracking Department, where the Medical Records Clerk would generate and attach a case tracking bar code sticker to the worksheet. Thereafter, the worksheet and accompanying materials could be located and/or retrieved using the bar code. The greatest advantage of this proposed system would be the ability to immediately locate from either the upper or lower level any case in the system.

4. Centralize filing - Centralized filing would promote case availability to all employees who may need it. It would also reduce lost cases because a single work-station would have filing responsibility. In addition, it would provide more floor space on the upper level because fewer cabinets

would be needed. Centralized filing could be achieved more efficiently from the lower level filing location if the following recommendations were implemented:

a. Divide the filing system into two parts: "Completed cases" and "Pending cases" - The new system will allow much quicker access because the completed cases will be separate from the pending cases.

b. Improve file organization - Pended cases should be divided according to the relevant contract. When the case is needed or has completed the designated pending period, it can be retrieved from the pended file, completed, and filed in the completed section.

5. Re-arrange work-flow - The following is a list of duty location changes that would improve efficiency at the Foundation.

a. Create a Filing and Tracking department - As noted above, this new department would be staffed with three current Foundation employees: The Medical Records Clerk, the Tracking Technician and the File Manager. This new department should be located on both levels. The Medical Records Clerk and the File Manager should be located on the lower level and The Tracking Technician should be located on the upper level.

b. Relocate the Medical Records Technician to the Assistant Manager's office - This move will serve two purposes. First, it will open the space currently occupied

by the Medical Records Technician for a Receptionist. Secondly, it will produce a closer proximity for the Assistant Manager and the Medical Records Technician who cooperate on many Foundation activities.

c. Relocate the Denial Clerk to the Denial Technician's office - This move will locate the Denial Technician and the Denial Clerk closer together which should produce greater efficiency. In addition, it will free the area presently occupied by the Denial Clerk for a receptionist.

d. Move the Reception area to the upper level - The receptionists should be moved to occupy the space vacated by the Medical Records Technician and the Denial Clerk. This will allow for a more efficient reception of visitors to the Foundation.

e. Move the Secretarial staff to the upper level - The Secretarial staff plays an important part in the Foundation's effort to create timely review. These employees should be moved to the office vacated by the Medical Records Clerk. There would be several advantages to this:

1. It would be easier for the Foundation staff to forward typing and transcription to this station and to explain any elements that might need special attention.
2. It would be far easier for the secretaries to access Foundation personnel to check any questions that might arise thereby saving numerous corrections and time.
3. Less time would be spent getting work to and from the secretaries.

f. Move the Fax machine to the upper level - The Fax machine should accompany the secretarial staff. This will allow easier access by the employees who utilize it.

g. Relocate the Medical Director's office - Currently the Medical Director is located away from the review process in which he is critically involved. According to the flowchart produced for this study the Quality Assurance Coordinator and the Executive Director interact a great deal with the Medical Director. Closer proximity of these three would facilitate a more efficient review process.

The combination of re-assignments and relocations puts similar work processes together and reduces time spent transporting files. The result should be a more timely and efficient review process.

6. Limit final entry into the System 36 to one location

As noted above, the System 36 can be entered from several workstations. The resulting lack of coordination leads to lost cases and excess time being used in the necessary transfers and multiple handling of cases. Entry from a single location would significantly improve timeliness and would help eliminate lost cases.

C. CHANGES TO BE CONSIDERED IN THE FUTURE:

1. Simplify the review process - The Foundation's Medicare case generation and review process is complicated for several reasons. A case may be channeled through

numerous routes depending on the type of case and the reasons for review. Each route has numerous steps as well as specific time frames. Given the work-flow complexity, it seems natural to seek steps that can be eliminated without effecting quality. However, numerous government regulations and the necessity of high skill levels make simplification difficult to accomplish.

Examining employee qualifications to determine the feasibility of merging processes is beyond the scope of this paper. However, one comment may be appropriate. The Foundation's Executive Director should examine the flowchart provided with this study to see if any operations can be performed in an unbroken sequence. If this is done, the advisability of job reassignment should be considered.

2. Network the computers to speed work-flow - A substantial volume of paper is carried by hand throughout the Foundation during the review process. Letters must be generated, checked and rechecked by different individuals. Memos are passed to expedite procedures and to check review progress. Forms must be completed to request that work be transcribed or typed. Request forms must be completed to receive files from the lower level, and so on. Although this is not a complete listing of paper generation, it is sufficient to make a point, all these processes could be expedited if computer networking was utilized. It would speed retrieval, save paper costs, reduce errors and reduce

duplication of efforts. In addition managers could supervise their employee's work in a more efficient manner.

The suggested network does not need to link every terminal at the Foundation. It should, however, link managers with their work groups. For this to be accomplished the managers at the Foundation would need to have terminals for their offices.

3. Provide portable computers for the field Review Coordinators - Portable computers could make the field-based Review Coordinators more efficient and eliminate a large amount of hard documents which they are now sent. Instead a computer disk could be mailed or the information could be transmitted to them on a phone modem. This addition might speed the review process substantially.

D. COST BENEFIT ANALYSIS FOR PROPOSED CHANGES:

This section will analyze the costs and benefits of the proposed tracking system and the other changes proposed in this paper. If these changes are implemented they should reduce late and lost cases to less than 3% of the completed cases (which is what Central Office expects). In addition, partial cost figures will be given regarding possible future changes.

In considering costs, eight variables will be considered:

1. Cost of computer equipment
2. Employee station stamps

3. Installation of equipment
4. Installation of computer wire between floors
5. Moving current work positions
6. Increased postage costs
7. A full time Tracking Technician
8. A Filing and Tracking Manager

1. Cost of computer equipment - To make the proposed link between the tracking computers on the lower level and the main floor, several new pieces of equipment and software will be needed:

a. Networking software (PC Mos)	\$595
b. Emulation software, \$199 per(2)	\$398
c. Bar coding device and wand \$399 per(2)	\$798
d. Bar coding software	<u>\$129</u>
Total	\$1,920

The Foundation has just purchased a computer for Prof generation which is capable and could be used to link the tracking computers. The Foundation already possesses the printer necessary to implement bar coding.

2. Employee station stamps - The Foundation would need to utilize 24 stamps. This figure is based on the current processing work stations. These stamps could be the simple ink blotter variety:

a. Station stamps, \$12 per(24)	Total	\$288
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3. Installation of equipment - The Foundation's Computer Analyst was consulted to get an equipment installation cost estimate. These figures are based on an estimated pay scale of \$50 per hour:

a. 3 hrs. to install bar coding	\$150
b. 5 hrs. to network computers	\$250
c. 10 hrs. to write program	<u>\$500</u>
Total	\$900

4. Installation of computer wire between floors - The cost of running wires between floors for the network should be obtained by soliciting bids from construction companies. For the purpose of this paper it is estimated:

a. To route the wires	Total	\$750
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5. Rearranging current workstations - Moving the current work stations will take time and will disrupt the work flow for a short period of time. It is advisable to employ a moving company to move desks and equipment.

a. Rearranging work areas	Total	\$300
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6. Increased postage costs - Implementing the proposed changes will cause an increase in postage costs. This estimate is based on three letters per case and on 5000 cases. It should be noted that many cases may be finished ahead of the time frame and may not need the contemplated reminders. Because of this, it is believed that the 5000 number is a high estimate:

a. Postage increase	Total	\$3,750
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The phone bill should remain constant because it is a WATS line.

7. A full time Tracking Technician - The proposal would require converting the Tracking Technician position from part-time to full-time. The figure shown here is based on a pay rate of \$5.50 per hr. for an additional 20 hrs. per week for a year. Taxes and fringe benefits are estimated at 30%

of the wage:

a. Half to full time	Total	\$6,864
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8. A Filing and Tracking Manager - The proposed Filing and Tracking Department would require a manager. If one of the current employees were to be chosen, a wage adjustment would be appropriate. This estimate is based on a \$1 per hour increase for one year and assumes a 30% tax and fringe benefit cost.

a. Increase for Manager	Total	\$2,704
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The estimated incremental costs for the first year total \$17,476. Of these \$4,158 would be one-time only outlays.

It was noted at the beginning of this paper that the Foundation is in a position to lose a minimum of \$42,150 because of late and lost cases. It would be presumptuous to claim that 100% success can be attained with the proposed system. However 97% seems reasonable. 97% of \$42,150 is \$40,886. Therefore, if the foregoing estimates are realistic, the Foundation is in a position to save \$23,410 the first year and over \$27,000 in subsequent years by implementing these suggestions.

9. Considerations for the future - Five managers at the Foundation are currently without computers at their stations. Future networking of these managers with their employees should be considered:

1. Five PC's, \$3,000 per	Total	\$15,000
2. Novell Network system		\$3,500

3. To update existing computers to accept network \$600 for computer board \$400 for memory	\$1,000 per computer
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These figures can be applied to give a rough estimate to any network configuration the Foundation chooses. Labor costs will need to be added based on the design chosen.

Computerizing the Review Coordinator positions would be a way to improve efficiency. The following estimate is based on a portable computer made by Toshiba or NEC. There are currently 25 coordinators in the field.

a. Computer,	\$2,800 per	Total	\$70,000
b. Phone modem,	\$ 250 per		\$ 6,250

There would also be some programing expenses to make them compatible with Foundation functions. In light of this expense, a field experiment would be prudent before all the coordinators were equipped with computers.

V. ADVANTAGES AND DISADVANTAGES OF THE PROPOSED SYSTEM

A. ADVANTAGES:

The advantages of the proposed systems are:

1. Providing better service to Contractors and a higher degree of contract compliance - Organizations who contract for a service expect an accurate and timely product. The proposed system should allow the Foundation to improve its

late/lost ratio from 24% to 3%. Based on the 7,000 Medicare cases, that equals an elimination of 1,470 late and lost cases. If the system is applied to all the Foundation's activities, this figure will grow dramatically.

2. Improvement of employee morale and satisfaction -

Many people derive a great deal of satisfaction from their careers. They want to do a good job. Constant searching for cases and consistently late compliance have negative affects on morale. An effective system will improve employee satisfaction.

3. Improvement of work quality by providing more time for actual review -

The Foundation has to process a specific amount of cases no matter how long it takes to locate the documentation. As a result, the less time spent searching the more time can be spent on the actual review process. Shortening the access time will increase review quality.

4. Improvement of productivity -

Many business periodicals contain articles on the importance of improving productivity to remain competitive. A non-profit organization like the Foundation is not immune to competition. By implementing this system more records will be reviewed on time and the quality will improve. This will be an advantage to the Foundation since competition would be deterred.

5. Cost savings -

This study illustrates a potential savings of \$23,410 for the first year in Medicare contract

compliance alone. When other contracts are considered, plus improved morale, greater productivity and less overtime, the savings may be even more substantial. This money could be used to further update the Foundation's review systems, increase services, and compete for future contracts.

B. DISADVANTAGES:

The disadvantages of the proposed systems:

1. Getting employees to adapt to change - People become acclimated to a process and may consider it disruptive to change the way they work. Because of this tendency, implementation of the ideas in the paper will require increased supervision and monitoring until the new procedures become routine.

2. Disruption of office work-flow while implementing the system - It will require a day or more to make the changes necessary for implementation. This will complicate the review process for a short time.

3. Working through unforeseen complications - It is difficult to foresee every contingency involved with the implementation of the ideas presented in this paper. Modifications and adjustments may need to be made as the proposed system implementation progresses and unexpected flaws become apparent.

4. The initial cost of implementation - The initial cost of implementation figured on an annual basis is

\$17,476. This figure includes single expenditures as well as monthly obligations. Costs to maintain the system after the first year would decline to less than \$14,000 per year.

VI. CONCLUSION

The advent of computers and the subsequent information explosion has virtually eliminated the traditional methods of information storage and retrieval for all but the smallest offices. In addition, the computer age has forced new procedures regarding record retention. Government regulations require that medical files be kept for several years. In the Foundation's case it is three years. It is evident that for organizations such as the Foundation the new capabilities and new regulations have created a major problem with information storage and retrieval.

The proposals in this paper will mitigate this problem for the Foundation. They are summarized below.

1. Combine Filing and Tracking Procedures in a Filing and Tracking Department - This three person department will provide the necessary human resources to track and time the case load at the Foundation. In addition, it will facilitate a more accurate and timely filing department. It is a logical answer to the problems encountered when operations are split between floors.

2. Assign Case Tracking Numbers - This system will not only speed access to cases on the computer, it will reduce errors, provide important information about each case, and aid in the filing process.

3. Use One Tracking System with Bar Coding - The tracking system recommended will accomplish the following:

- a. It will transform the tracking process from a system that can require days to one that requires minutes.
- b. It will enhance compliance by reducing the possibility of circumvention.
- c. It will eliminate duplication of effort by using one system instead of four.
- d. It will allow immediate location of records anywhere in the system, from either work level at the Foundation.
- e. It will provide reminder prompts to facilitate timely case review.

Bar coding is gaining an increasing application in record storage and retrieval. This process eliminates the time and error involved in manual entry of information. In addition to speed and accuracy, bar coding affords the convenience of utilizing existing forms.

4. Centralize Filing - Many companies are moving to a more horizontal organizational structure compared to the vertical orientation of the recent past. This has been caused by the inability of just a few managers to assimilate the vast quantity of information that is required in today's business climate. As a result, more people need access to

the information within files. Central filing eliminates the time consuming search through various filing systems in search of the elusive file. In addition, it reduces the errors caused by multiple handling. It also simplifies the tracking process.

5. Rearrange Work-flow - Several shifts or relocations of workstations are suggested. If adopted, these should reduce the frequency of lost and late cases, improve timeliness, boost employee morale, and enhance the Foundation's image.

6. Limit Final Entry to the System 36 to One Location - This revision will allow for a more timely review because cases will not have to await entry at separate locations. Time will also be saved because of fewer transfers between locations. With one entry location accuracy should improve because of that station's accountability.

7. Summary - It is the opinion of the author that the advantages outweigh the disadvantages of this proposal. From a business perspective, incurring implementation costs of \$17,476 for an annual savings of \$40,886 is an appropriate decision. It leaves an increase of \$23,410 the first year. This figure will increase in future years because initial equipment costs will not recur. These figures do not consider other benefits that might emerge such as increased productivity and improved morale.

The disadvantages of the plan are not unusual. They are in fact normal in the operation of a business. As such, they do not produce a significant barrier.

The plan as proposed can be fit easily into the Foundation's current work-flow. Nor does it present a serious drain on the Foundation's working capital since most of the proposed expenditures will be spaced over a one year period.

This proposal is a relatively inexpensive and readily adaptable plan to eliminate a complex and potentially costly problem. If adopted it will produce a more efficient and cost effective work-flow at the Foundation

Appendix A -CONCERNS OF THE EXECUTIVE DIRECTOR

Ray,

Per our discussions following is a statement of what I am looking for through this project.

1. A system that will track where a case is at any given time in the entire process. A case may pass through only one processing system and never be looked at again. On the other hand a case theoretically could pass through all possible processing systems, and could re-enter a processing system following completion of the review steps. A case could also be in several systems at several levels at any given time.

2. An analysis of the scope of our current problem. We currently show 7,000 cases selected for review since 10-1-88. Of these 286 are "missing" that is they have never been completed per the computer and they are way past-due for completion. I do not have a system that tells me where these cases might be. In addition we have 20% of all cases completed showing late completion dates.

These two combined issues of missing and late cases leave me at risk of not being paid for up to 25% of my cases. The average reimbursement for these types of cases is \$25.00. At this time the contractor has not chosen to withhold reimbursement for late cases and the entire policy of timing is under reconsideration.

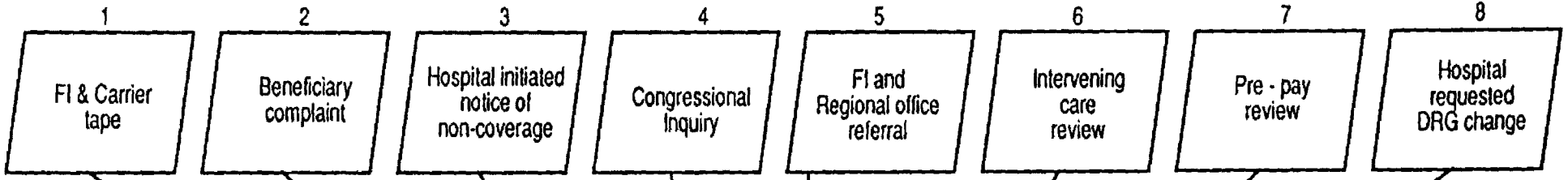
Potentially, the contractor may chose to not withhold this reimbursement for the cases that are already late. On the other hand they could legitimately withhold payment and retroactively withhold all monies due for lateness. 1400 cases a year late or missing would cost us \$35,000 per year. The contract price is 1.3 million per year. I need you to analyze my figures, determine the cost of a tracking system and advise me of the cost/benefit ratio of implementing and running a comprehensive tracking system.

Another issue besides cost is the fact that we are obligated under our contract to do these reviews and report them. The issue therefore is more important than just cost. It also relates to contract compliance and eventually to contract renewal.

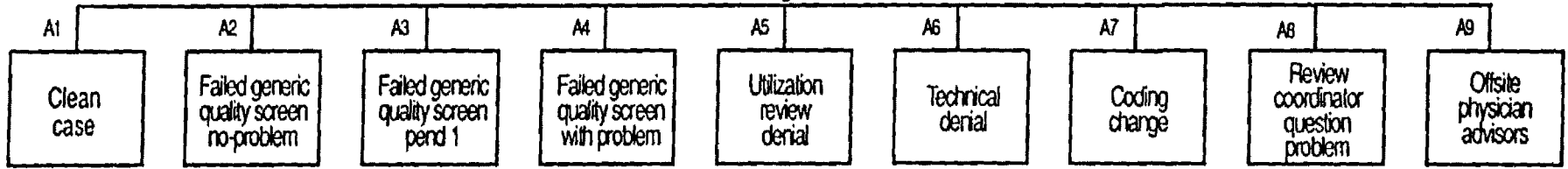
Thanks for your help. Call me anytime here or at home to discuss.

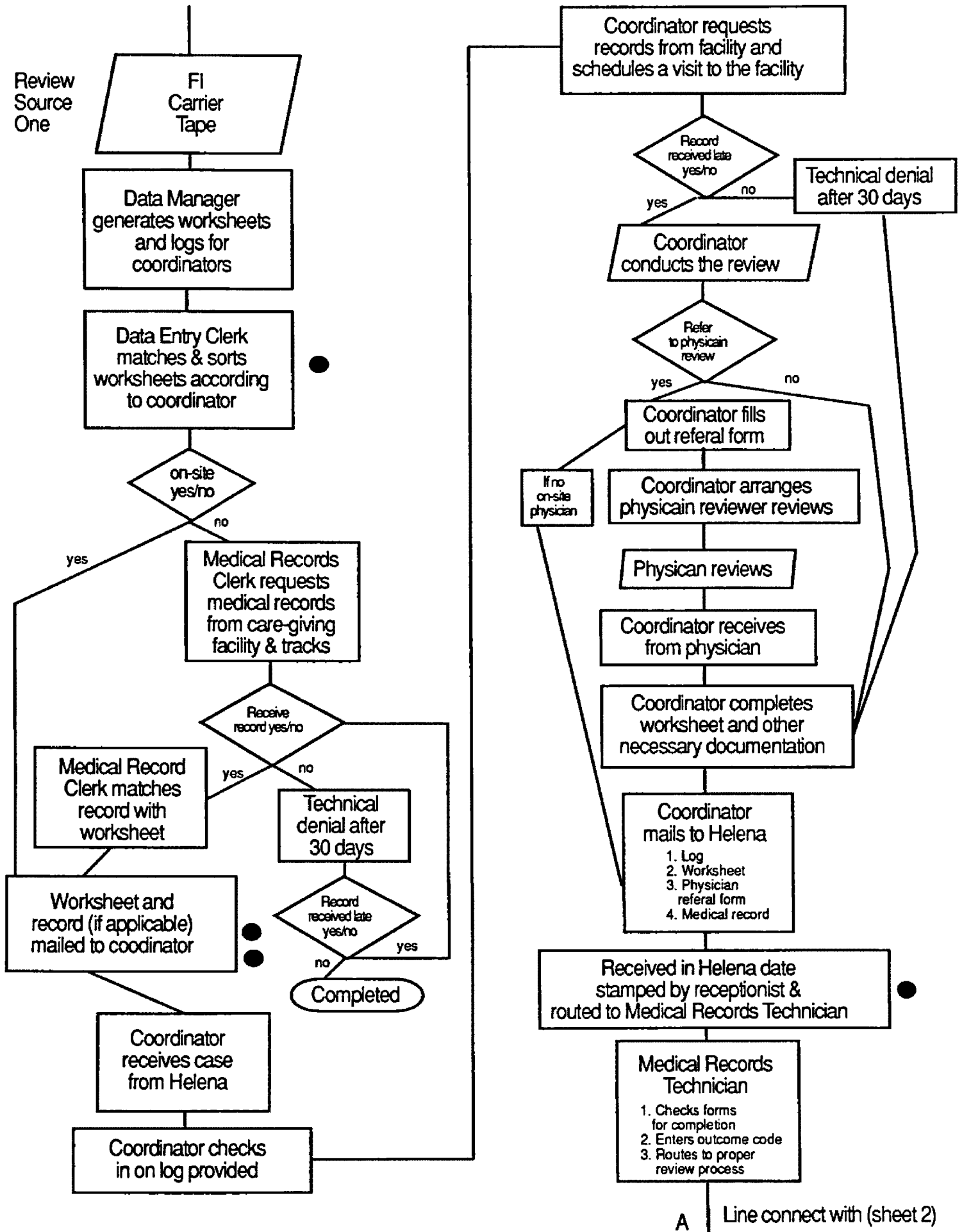
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REVIEW SOURCES

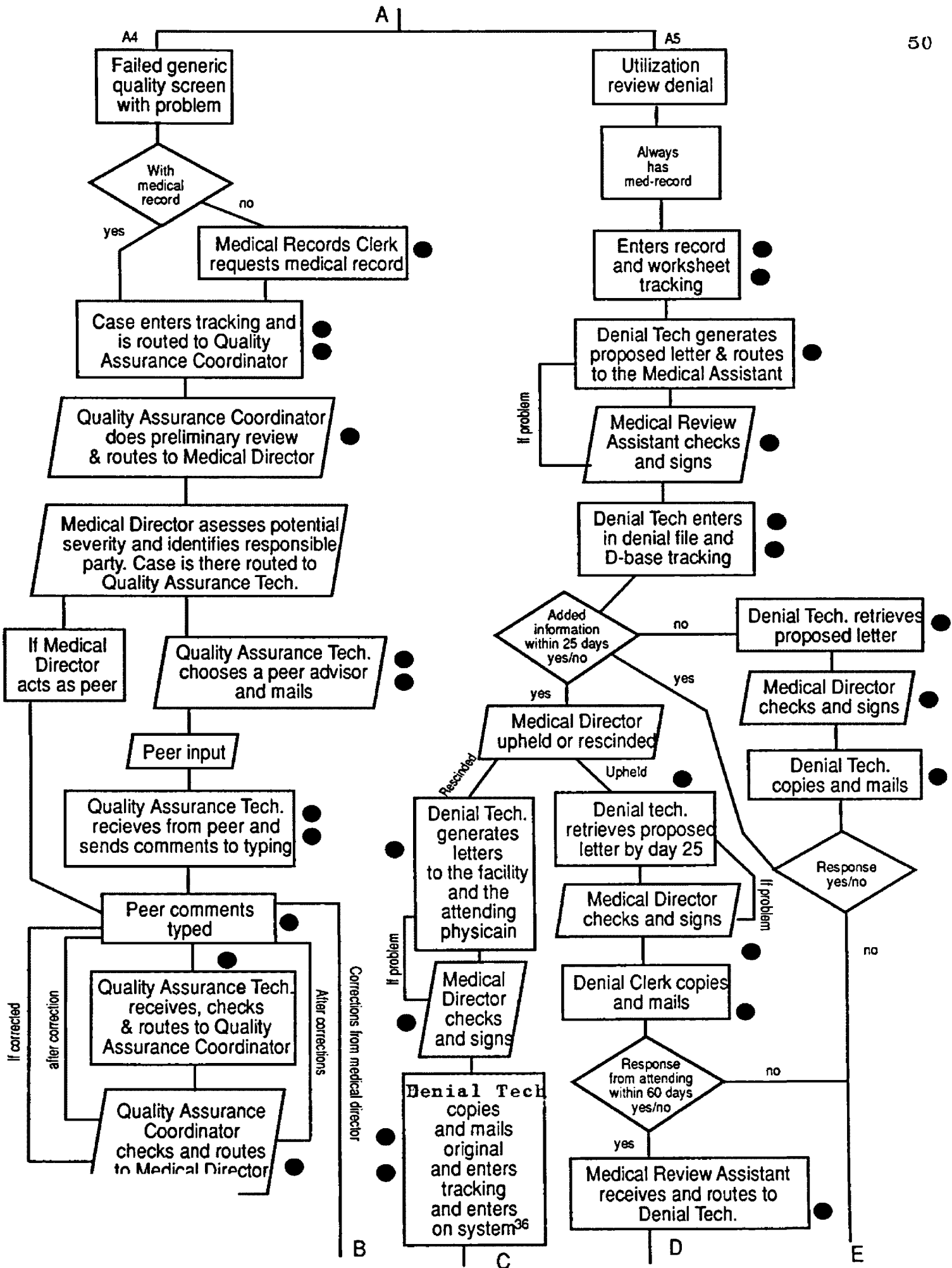


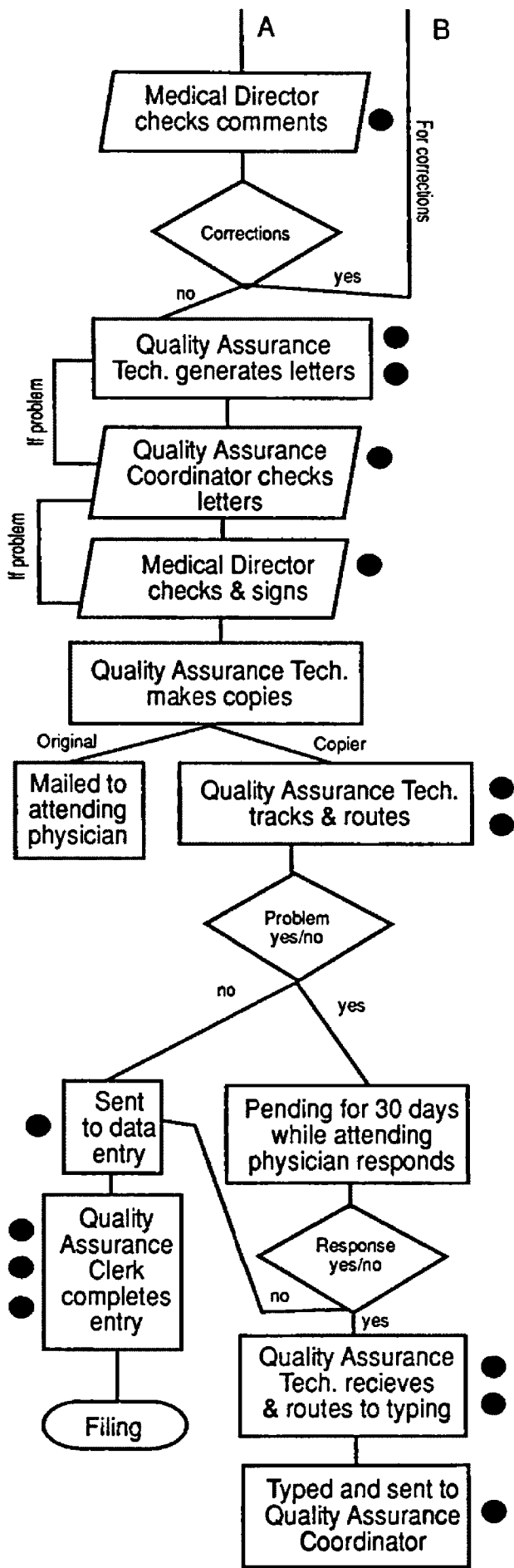
REVIEW PROCESS



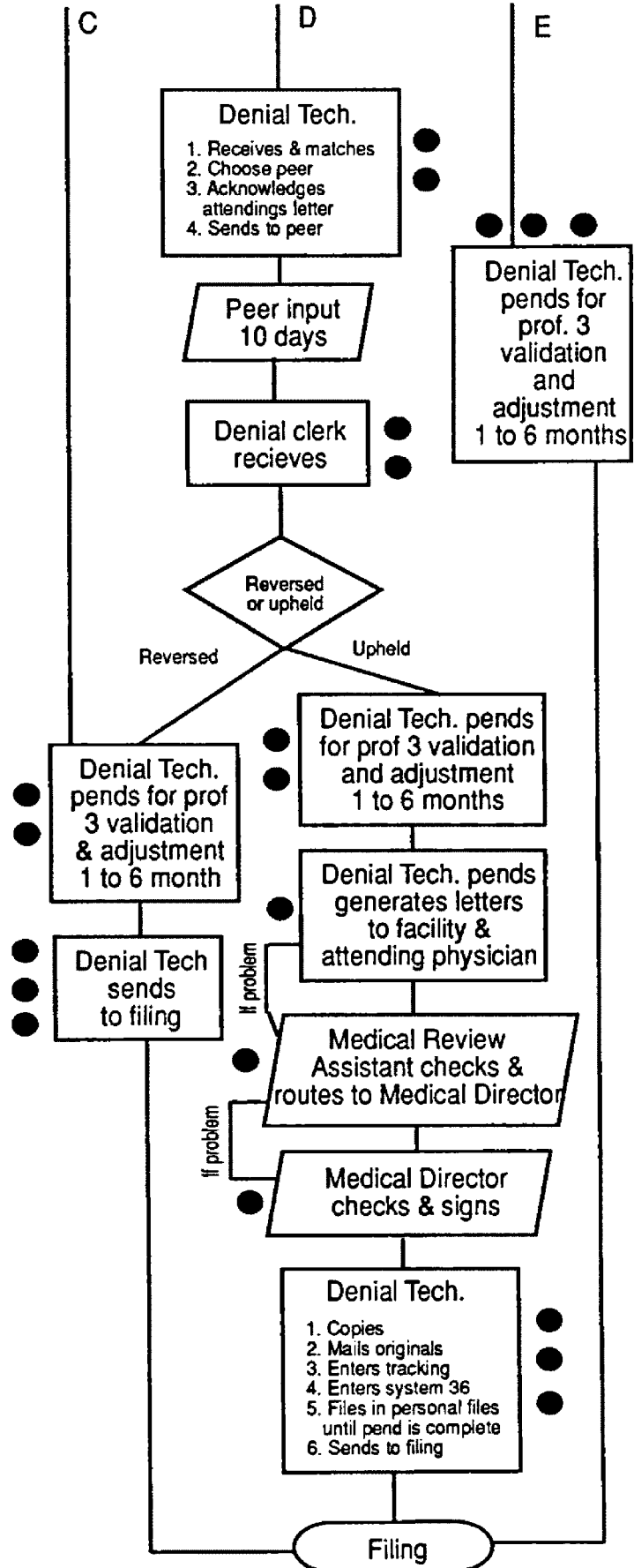


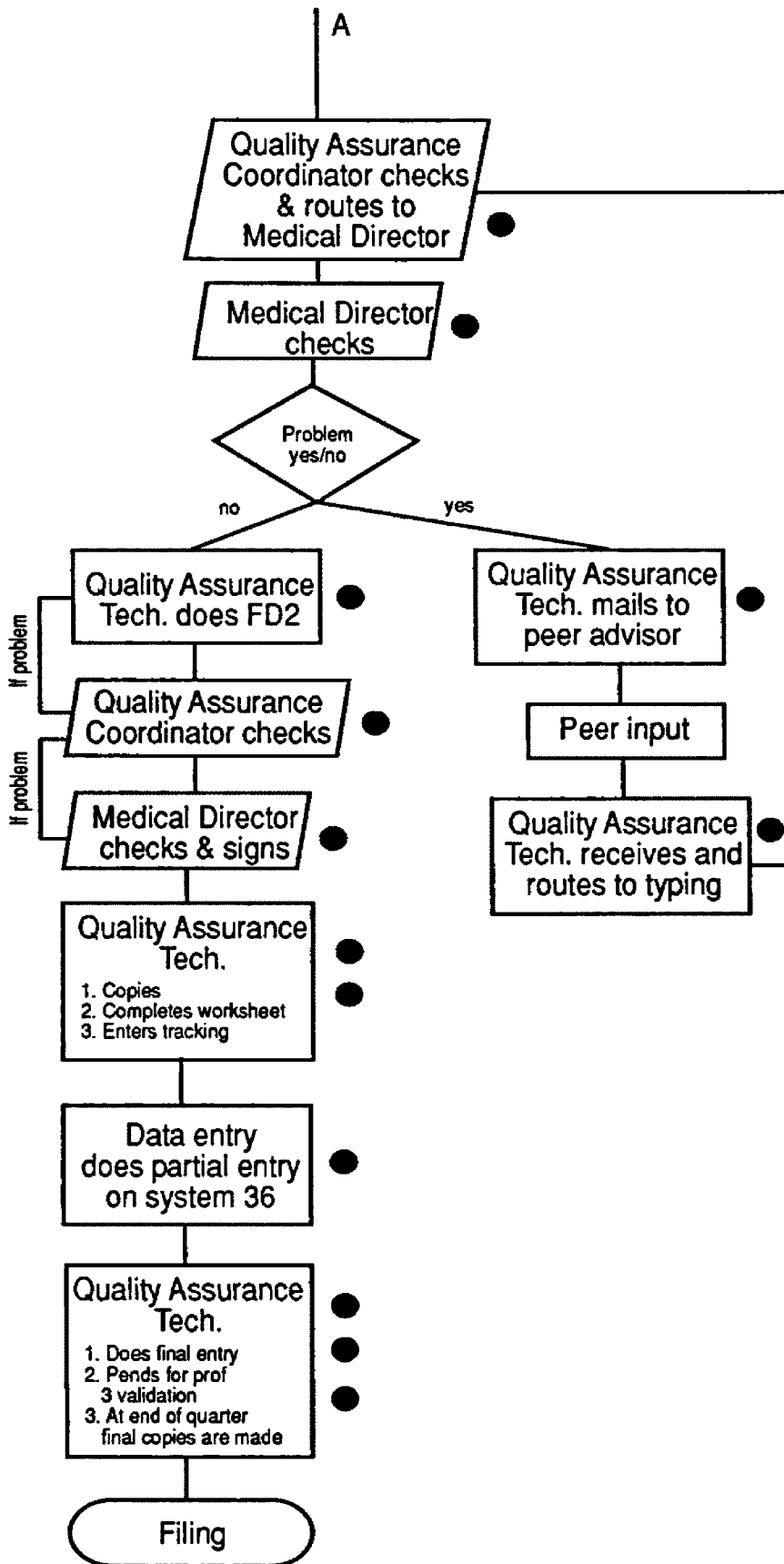
A | Line connect with (sheet 2)



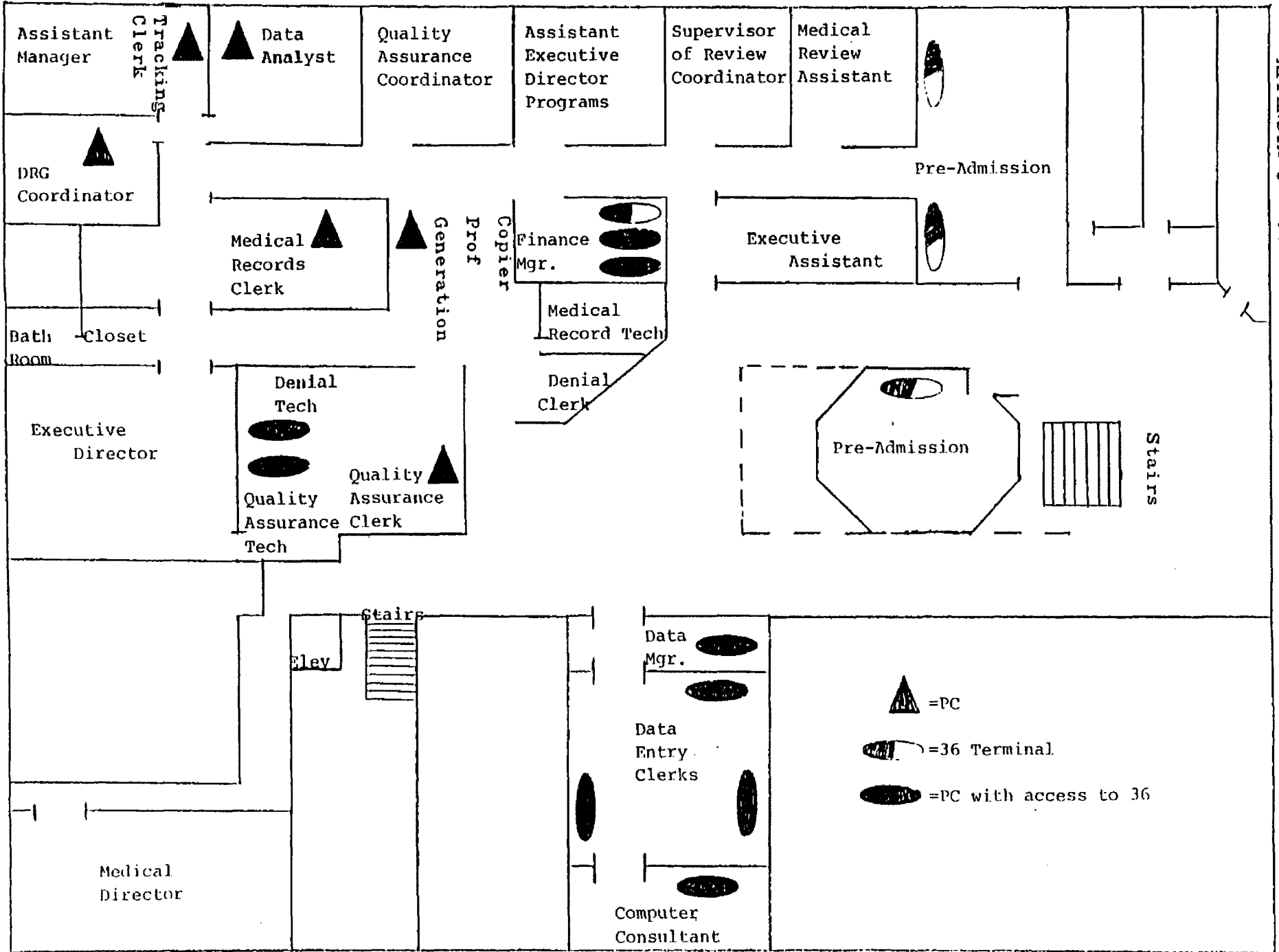


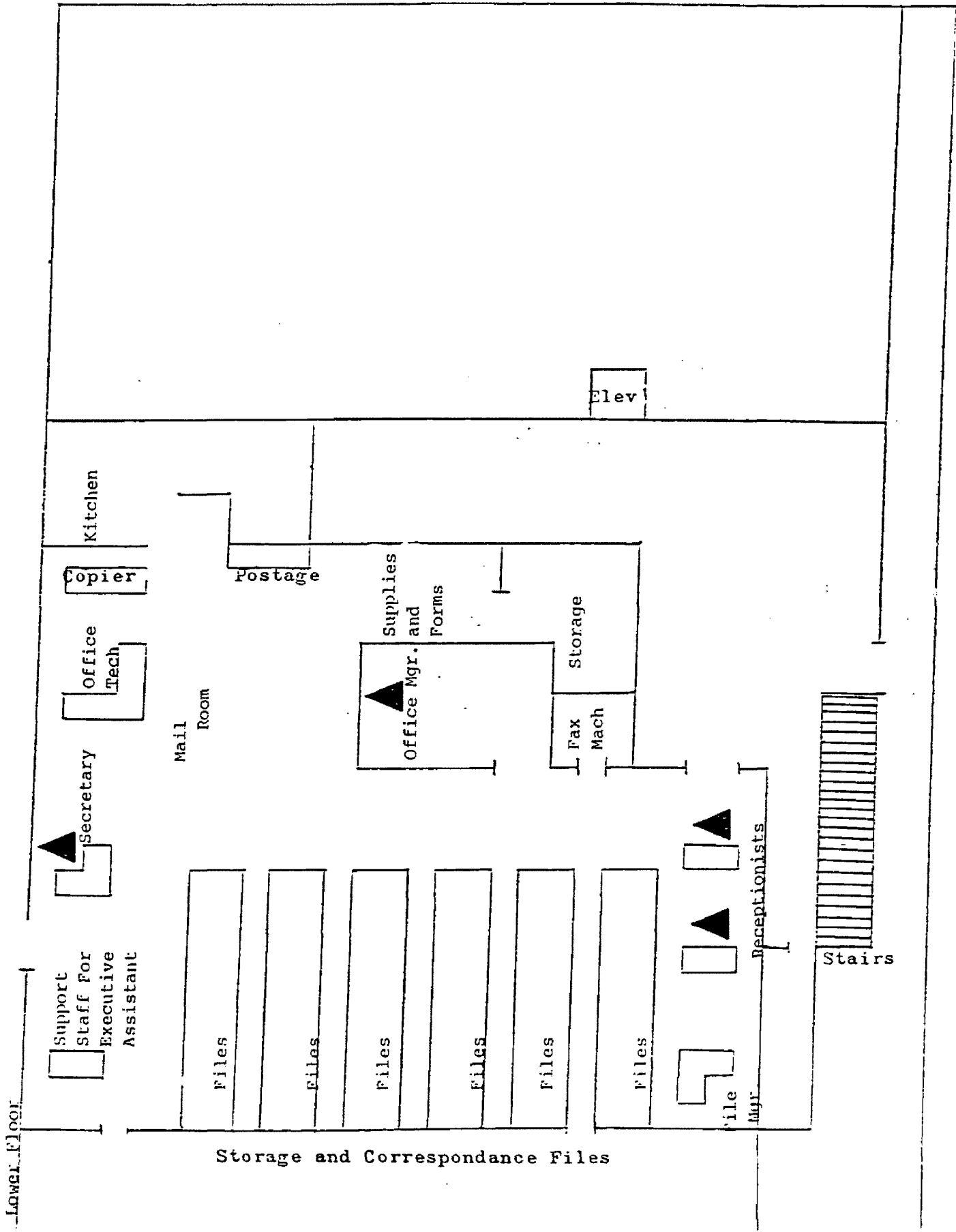
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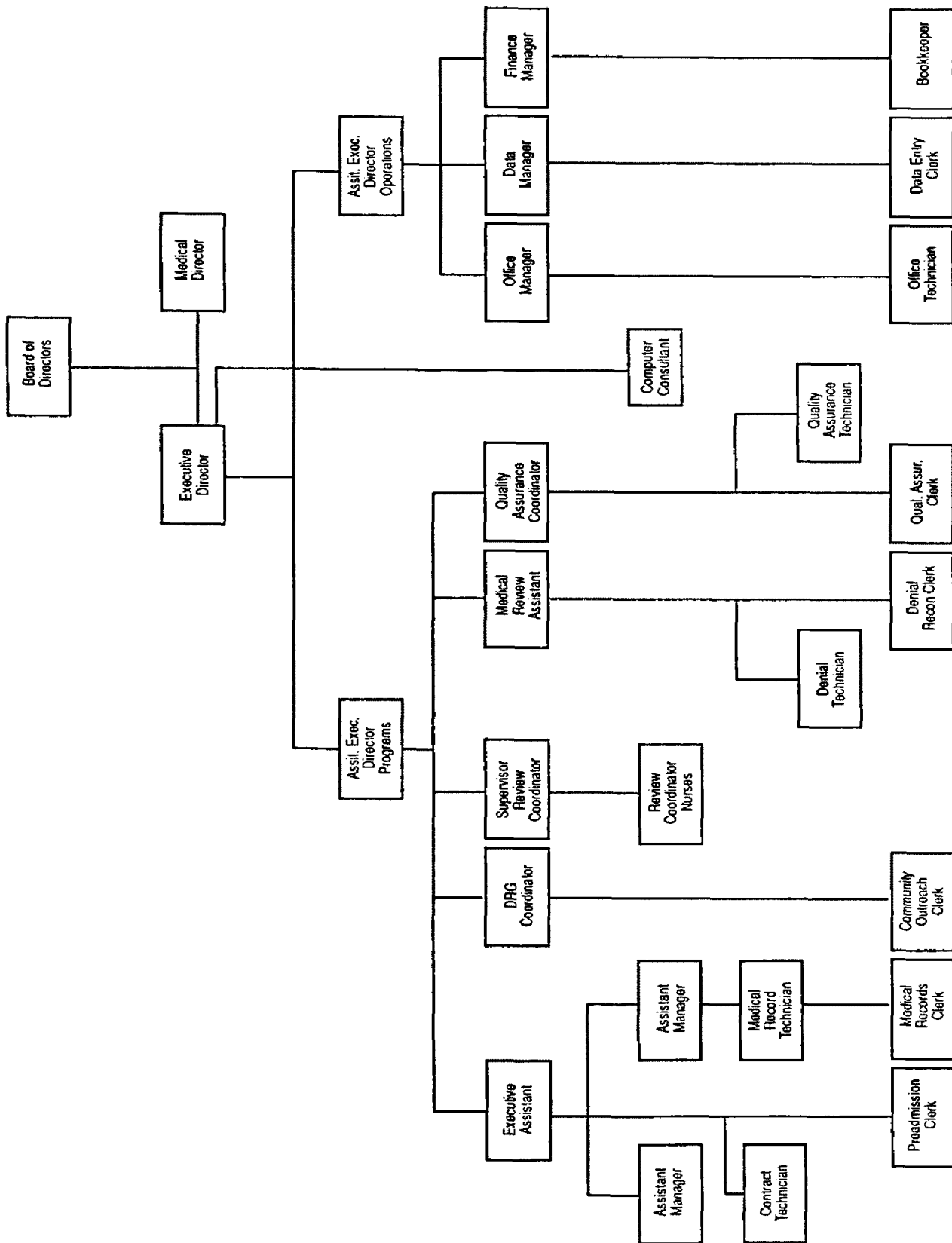




MAIN FLOOR







APPENDIX E - TRACKING SHEET

PLEASE READ

This cover sheet is part of a research project being conducted by Ray Fuller. The results will be incorporated into a Masters Thesis for the University of Montana. Your cooperation is a necessary part of this research. Thank-you for your assistance.

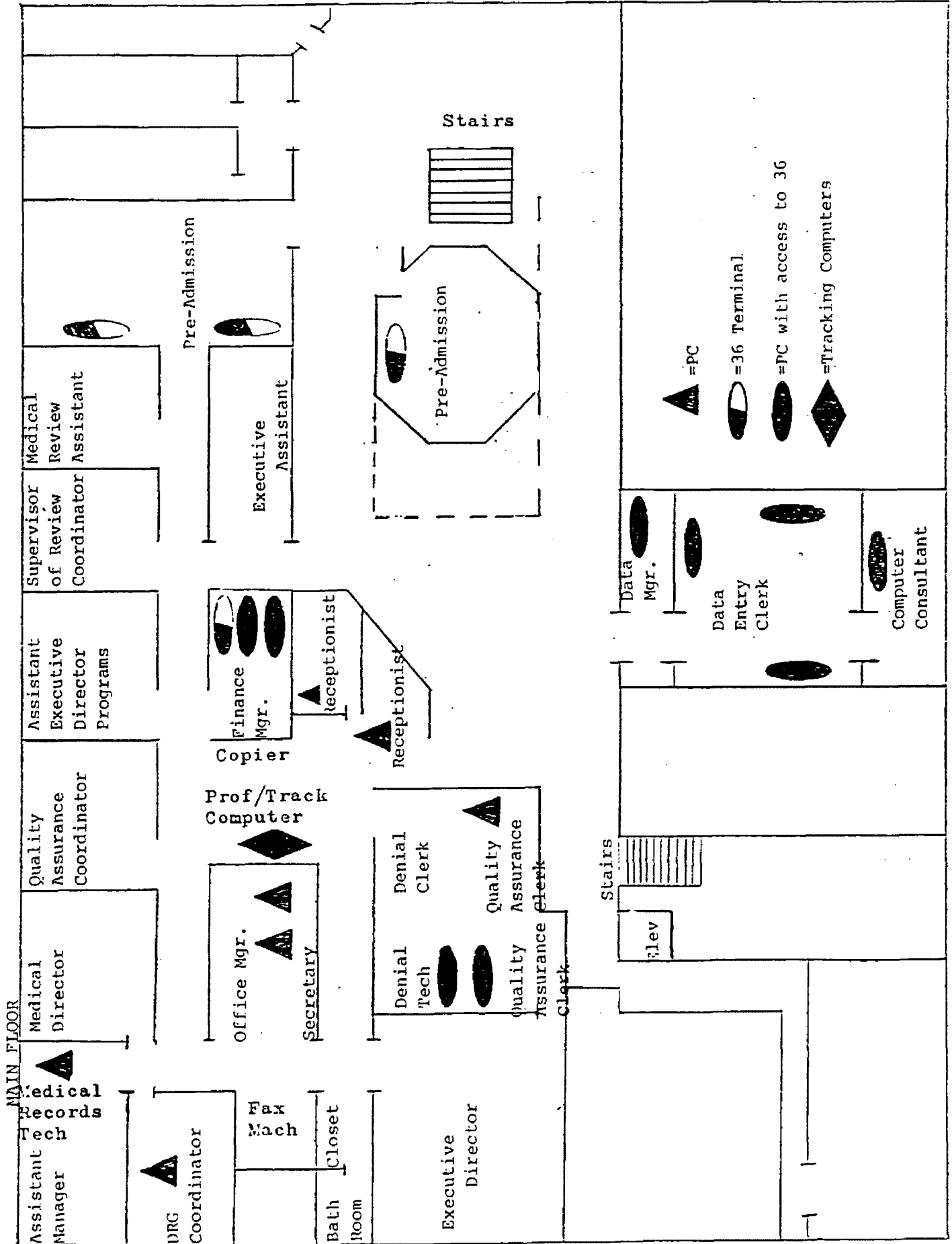
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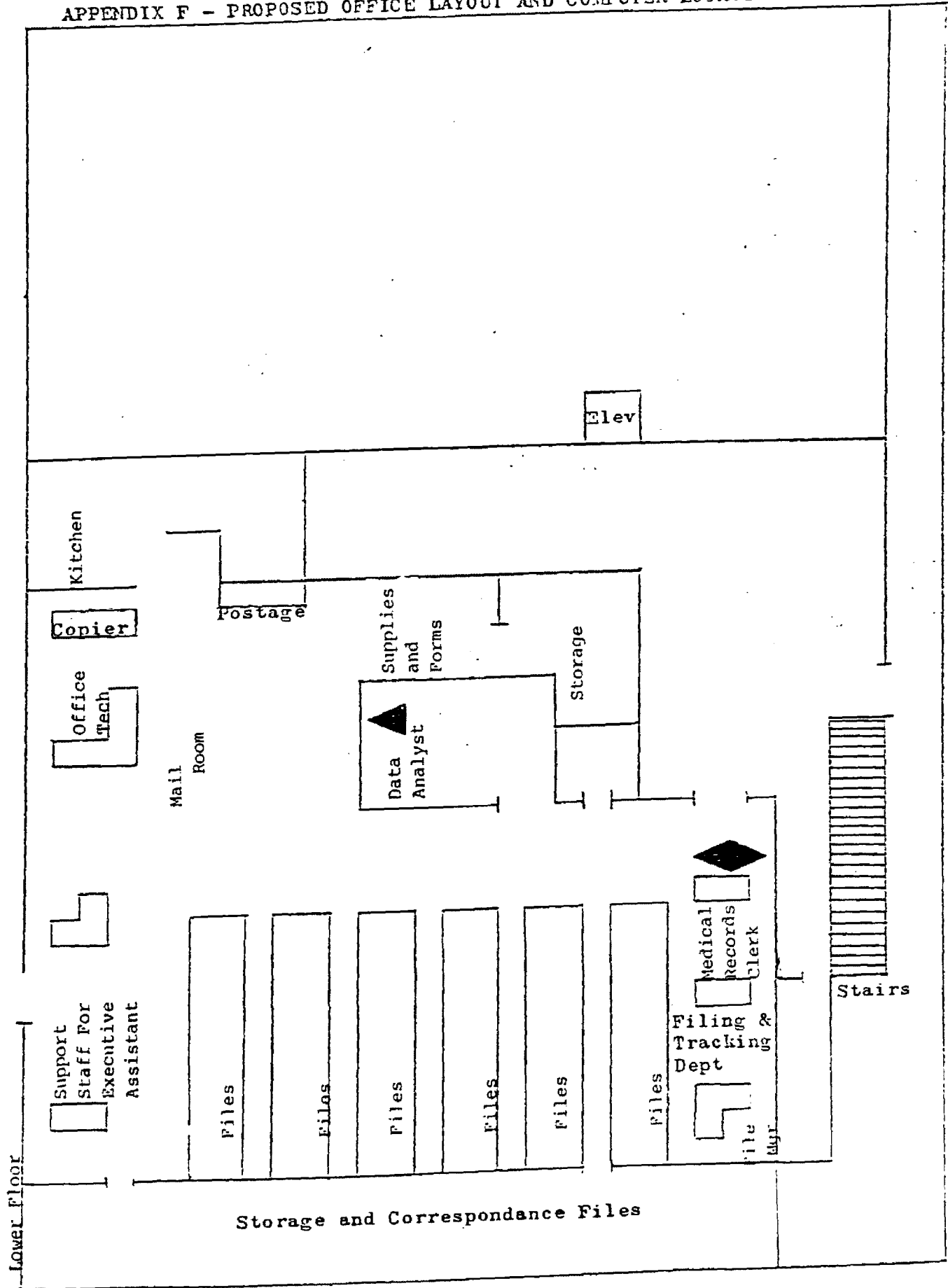
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This research is being conducted with the approval of Janice Connors, Executive Director of the Montana Wyoming Foundation for Medical Care.

Any questions may be directed to Christy Fuller at the Foundation office in Helena. 443-4020 or 1-800-332-3411

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