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In a review in this organization's journal of Eugene I. Grant's text, Statistical Quality Control (4th edition coauthored with Richard S. Leavenworth), W. E. Deming praises it as the outstanding text for both teaching and home study of the statistical control of quality. Deming does find in it, and all other such texts, however, the limitation of treatment of the controls of the process to the assignable variation or defect that the worker himself can correct. The main cause of these variations and other production troubles, says Deming, lies mostly in the system itself. The production worker works within the system; i.e., policies or procedures. He is not responsible for it, nor can he change it. Only management can change the system. This is the forgotten half or forgotten 80 percent of quality control, says Deming.

Expanding on this point of view in the August 1975 issue of Interfaces, a journal of the Institute of Management Sciences, and drawing upon his renowned efforts and experiences in quality control and in methods of administration in Japan, Deming now raises to 85 percent the common or environmental faults that stay in the system until reduced by management. The cause specific to the production worker or machine are now seen to be a mere 15 percent.

Paraphrasing Deming, a major roadblock to quality in America and a guarantee of future disappointment is the supposition all too prevalent that quality control is something that you install like a new Dean or Commissioner (or new carpet or new furniture). Install it and you have it. Actually, quality control, to be successful in any company, must be a continuous learning process, probably more at the top than at the bottom and under competent tutelage.

The second roadblock sighted and cited is management's supposition that the production workers are responsible for all the trouble; that there would be no problems in production or in service if only the workers would do their jobs the way that they were taught. Nirvana!

It is Deming's experience that it is something new and incomprehensible to a man in an executive position that management could be at fault in the production end. Production and quality in the view of management are the responsibilities of the production worker. Research into faults of the system, to be corrected by management, is not what a manager is trained for. The results are the retention of the faulty system, high costs, low quality, and persistent quandry why efforts at amelioration are to no avail.

Management reacts to this situation by turning the job over to an office of quality control. This would be a happy solution if it solved anything. It usually doesn't because what we gain are new titles and perhaps higher grades or new or old people with tried and tired ideas. A

recipe that guarantees failure.

Statements by management of aims desired in quality and production are not quality control, nor are exhortations, pleas, and platitudes addressed to the rank and file very effective. The results are merely intensification of guerilla sniping. Something more is required.

It may have occurred to some of you that if I substituted case worker, interviewer or adjudicator for the term production worker and if I had added legislators and public to management, I would have been describing the situation in the administration of welfare benefits today. The Social Security Administration's Evaluation and Measurement System is the something more. How much more is to be determined.

In the early 1960's, a team from the General Accounting Office studied how policies and procedures (i.e., the system) were established in the Social Security Administration for handling claims for retirement and survivors insurance benefits and how these policies were observed in practice. Their report to Congress highlighted two conclusions. One, SSA's policies and procedures were too lax, leading to incorrect payment of benefits, and two, SSA had no continual and objective means of determining the validity of its policies and procedures. This report served as the final impetus which led to the establishment of SSA's Evaluation and Measurement System (EMS). This system in turn, has rated GAO's conclusions, and has given it a grade of 66.7 percent. A description of the rater, that is EMS, is the heart of this paper. A justification of the rating will also follow.

The Commissioner, subject to the same type of attack when he for a brief period headed up what is now the Social and Rehabilitative Services Administration, immediately agreed to set up a continuous and objective measurement system but with one exception refused to modify the existing procedures specifically attacked in the GAO report pending results from the new EMS system. Among the procedures under attack were those establishing date of birth, proof of marriage, identity, whether the young wife or widow has a child of the wage earner in her care, proof of support, and retention of documents submitted as evidence. In essence, the heart of the claims adjudication process was attacked.

While there was no continuous and objective means for determining validity of policies and procedures, the product or service was of course not designed and evaluated in a vacuum. There were frequent ad hoc studies, feedback from operating personnel, claimants, and of course, congressmen. It would be pollyanish to presume that the feedback was unbiased but the ad hoc studies were attempted in good faith. Nevertheless, these studies (as well as many quality appraisal efforts) were conducted within operational

contexts and constraints resulting in modifications of probability samples (not in its selection but in differential completion rates) thus destroying not merely the possibility of measuring precision but most importantly the representativeness of the results, and with insufficient controls and standards of measurement under which doubtful creditability could be attributed to results no matter how small the sampling error.

To help design an objective system Joseph Steinberg was lured from the Bureau of the Census. He received the assistance of representatives, managerial and operating personnel of the various bureaus within SSA in designing the system. Draft after draft were critically reviewed, attacked, and discarded. Finally, with some arm twisting and tongue lashing from the Commissioner a design acceptable to all was adopted. The period of gestation approached 9 months. Some things can't be hurried. A point to be stressed is that a system which will more likely gain the acceptance of the rater and the rated is one that is jointly produced even though in the course of joint production the legitimacy of the birth of those involved are reflected upon by each other. Happily for me I did have a certified copy of my birth record readily available and a furtive glance at it put my fears to rest.

Some of the alternatives faced and decisions made in designing this system will be referred to in the remainder of this paper. One decision that could be made only by the Commissioner was where EMS should be placed organizationally. In order to maintain credibility, it was decided that it could not be located within those arms of SSA responsible for policy and procedure formulation or implementation. EMS was placed in the Office of Research and Statistics (ORS). Under a recent reorganization EMS was culled from ORS and both organizations report directly to the Associate Commissioner for Program Policy and Planning. While there are many reasons for an overall quality control or quality appraisal, quality assurance or evaluation (the same concept may masquerade under different nomenclatures) not to be lodged under those immediately responsible for designing and/or performing the operation or service, we must be aware that while we are avoiding the Scylla of seduction by operational needs or interests we are tempting the Charybdis of being entirely ignored. This is a familiar problem facing each maiden including one whose name is Quality Appraisal or Evaluation unless closely chaperoned by the very top executives.

Now back to the design and operation of EMS. Each month a stratified nonself-weighting probability sample of 1,000 claims for retirement and survivors and disability (and recently supplementary security income) benefits that were processed, awarded or disallowed benefits the prior month are selected by computer. Stratification is by factor of eligibility to benefits and is frequently modified as greater errors are indicated or more detailed information is required

regarding selected factors of eligibility. All claims material pertaining to the case residing in our district or reviewing offices and wage record data in Baltimore are transferred to EMS for reexamination by one of our policy measurement specialists. These specialists have usually had district or reviewing office experience as well as additional training in statistics. Data regarding the policies or procedures applied in the original claims handling, the evidence submitted, the findings made, the apparent correctness or deficiencies of the findings under existing operating standards, demographic characteristics of the claimant, operational data, amount of benefits involved, etc., are entered into a relevant subset of 18 optical scanning coding sheets. The punchcards subsequently produced are fed into the computer for editing of completeness and for internal logic. When the data pass these tests, they become part of our data base. This data base presents an early detailed source of information to decision makers regarding the existent claims process and can frequently answer the question, what if...?

In the meantime a transmittal sheet containing the name and address of the selected claimant as well as the names or initials of the district office employees previously involved in the case are forwarded to the servicing district office together with relevant questionnaires. Upon receipt of these forms the district office manager, in our attempt to reduce bias that may result due to knowledge of what has already occurred in the case, withdraws any material regarding the case from the district office's open files. He then assigns the case to a nonpreviously involved district office management or technical employee in accordance with a previously designed sample scheme. In designing the system, preference was to have the field redevelopment work done by an outside organization or by non-DO based SSA employees but cost considerations militated against these approaches. Hence the substantial efforts to mitigate any bias effects by the district office data gathering function in the system.

The assigned district office redeveloper writes to the selected beneficiary that his case has been selected by chance in order to evaluate our methods and procedures, and not because we believe there was anything wrong with the prior decision, and that he will be phoning him within a few days to arrange an appointment at the beneficiary's home.

At the beneficiary's home, the district office redeveloper begins the interview by reading the following statement: "Every month we choose a small number of new cases for review. The purpose of this review is to help us evaluate our policies and procedures. Your case was selected purely by chance and is part of a statistical sample. Although the main purpose of the interview is to judge how well our application process is working, if we should find an error we will correct your benefit amount. Completion of this

questionnaire is not compulsory. In any event the Social Security Act requires verification of eligibility factors and it will be necessary for us to contact independent sources. The statements you make or information you give us will be used only for statistical purposes and to determine your correct benefit amount. First, I would like to ask you a few general questions." He then proceeds to ask questions from the biographical questionnaire and various supplements designed to elicit information regarding the claimant's birth and baptism, previous residences school attendance, marital history, military history, employment history, etc., as they pertain to the possible establishment and existence of (documentary) evidence regarding the factors of eligibility at issue. The questions are to be asked in a structured manner and initially, precisely as worded.

This questionnaire merits further attention. First it should be noted that its chronology is cyclical. We trace residence chronologically, then schooling, then marriage, children, employment, etc. Second it should also be noted that many questions obtain the desired information indirectly. Thus responses to an individual's age come not only from asking when you were born but where and when did you enter school. Thus if you first entered school in City X and you moved from City X in 1903 then based upon the date of birth of 1901 that you originally gave us you were only age 2 when you entered school. I am talking to a child prodigy! No! Let's start again! The questionnaire thus permits additional reinforcement or weakening of the allegations with every additional question. This pattern of questioning is used to considerable advantage in obtaining more accurate information, than in the regular claims process, regarding income, assets and living arrangements in the Supplemental Security Income Program. In addition to questions regarding the claimant's birth, citizenship and marital status, information is also obtained regarding the claimant's children and their ages and residences. The claimant's residences and living arrangements over the past 3 years rather than merely the current residence and living arrangements are pursued. Current household and personal expense questions are asked in addition to questions regarding income and resources. The questionnaire weaves a net around the allegations either strengthening or weakening the allegations with every additional question. This pattern of questioning is used to considerable advantage in obtaining information regarding income, assets, and living arrangements in the Supplemental Security Income Program.

Upon the conclusion of the questionnaire, apparent inconsistencies or doubts raised by looking at the information supplied, either the specific allegations, or the allegations in their entirety, call for additional probing. After reconciliation or modification of the allegations, the sample person is then requested to sign a consent statement to permit SSA to obtain the required evidence from the various custodians of the records.

Subsequently, contact with the custodians of records and other third parties are made to obtain all the evidence or explanations necessary to establish all the factors applicable to the case. These include identity, date of birth, current and prior marital relationship, full-time school attendance, child relationship, child dependency, parent-child relationship, in-her-care, date of death, lump-sum death payments and more recently with the advent of the Supplemental Security Income Program, income, resources, and living arrangements.

Several recontacts with the claimant and others may be necessary to reconcile discrepancies among the allegations and evidence. The level of evidence (as well as the reinterviews) required to reach a finding as close to the truth, as feasible within the resources available to the EMS system, far exceeds that required in the regular adjudication of the claim.

Upon completion of the redevelopment (i.e., reinterviews with claimants, new interviews with third parties, record checks, and reconciliations), the completed forms and evidence are sent by the district office to the EMS staff, and this subsequent information is placed in a new folder and analyzed independently by a policy measurement specialist other than the one who had re-examined the case initially. If the redevelopment meets the EMS standards it is coded and fed into the computer. If not, it is returned to the district office for further development or reconciliation. The computer edits the data of the redevelopment for completeness and logic and when these tests are met the data are entered into the data base. The computer then compares this new information with the original information in the data base. All contradictions between the two parts of the case are printed out by the computer. It is at this point that the two separate folders are brought together and analyzed by a third policy measurement specialist in order to determine:

1. whether a true rather than a clerical coding difference exists;
2. what is the correct finding based upon all evidence in both files;
3. the substantive nature of the difference;
4. the reason for the difference;
5. the effect of the difference, and
6. the money amounts involved.

The above conclusions are entered into the data base. In addition a narrative summary of the case is prepared including how the difference was uncovered and alternative corrective management actions required to minimize such differences.

All cases involving differences or issues are made available to policy officials immediately

for their information or comment. Subsequently all difference cases and a subsample of the nondifference cases are returned to the regular claims process reviewing office, which reviews the case including all the new material and informs EMS what it believes the true findings to be, and proceeds to any revisions in the prior decision, or sends a closeout thank you letter to the claimant. It also sends a closeout letter in the remaining nondifference cases. If the reviewing office reaches a conclusion different from EMS, it is reviewed in EMS for possible revision of EMS's prior decision. EMS's decision is purely a statistical decision. It is the reviewing office's decision that has the impact on the beneficiary.

When 6 months samples are 95 percent complete, a formal preliminary report on these 6 months as well as the cumulative 5-year period, is forwarded to the Commissioner, members of his executive staff, and interested policy officials.

When a 1-year sample is 99 percent complete, a much more detailed final report is prepared. Special reports and memoranda, formal and informal and oral presentations are made to any or all of the above when considered meaningful, either in the course of policy formulation or subsequent evaluation.

Now, let me return to the 66.7 percent rating that EMS has given the GAO report. A full 50 percent is immediately given to one of the two conclusions, viz, the need for a new continuous objective measurement system of SSA policies and procedures. The immediate acceptance and implementation of such a system substantiates this critique. But what about the other critique -- that of laxness of policies. Yes, EMS has established that some policies were too lax. But on any reasonable cost benefit analysis, EMS has also established that some were in the right ball park, and in the case of others, substantially less effort on the part of the Administration or the claimant would yield comparable results. Thus this critique is only one-third correct which when added to the full 50 percent grade on the other critique explains the mystery of the 66 1/3 grade.

While one of EMS's major tasks is to report to the Commissioner on the current state of claims policies and procedures, another major task is continual liaison with policy officials in policy establishment or modification to determine what data are necessary in policy formulation or in a choice of one policy among several alternatives and what data are required in subsequent evaluation thereof. While we have made significant progress in this latter function, and perhaps more progress than could be expected of an evaluation function, we are nevertheless traversing a rocky road that needs constant repair. Need I state that the objectives, constraints, time perspectives and value judgments among those in operations are not necessarily the same as those in policy or systems design or

quality review. But nevertheless, success breeds success and the significant assistance that EMS has been able to provide policy and operating officials in such areas as establishing date of birth, a problem that eluded successful resolution for 25 years, how to deal with complex legal marital and child relationship issues, whether to recall material purged from inactive files upon subsequent actions in the case, upon the proper grade level of employees to certify evidence, are some examples which have established a secure and growing role to the EMS process. Operating in a research setting permits more independent pursuit of meaningful paths of exploration and analysis. On the other hand there is risk of oblivion, as those on the firing line ignore an evaluation body's existence or ignore its results. Careful attention to the needs of operation and policy officials and demonstration of the applicability of the research efforts in decision making, and the persistent but sensitive conveyance of these findings to the proper officials without any intent or appearance of an advocacy or adversary role is the only feasible approach. Some of the improvements in the claims process flowing from EMS were a result of highlighting the need for training but most meaningful improvements called for changes in the procedures or systems involved.

The integral role of the system is now widely and deeply ingrained in the SSA claims process and it has recently been called upon to play a critical role in our new Supplementary Security Income Program. The EMS task, much more than the regular claims process, involves sophisticated and intense but extremely delicate and sensitive probing of an applicant's income, resources and living arrangements. We approach this assignment with due modesty as this task according to the headlines of your daily newspaper has not been successfully accomplished to date at any level of government or elsewhere.

Insufficient time has elapsed since incorporating a subsample of SSI cases for me to be able to relay any meaningful results. Suffice it to say that we have adopted the same approach in these cases as in the case of retirement survivors and disability insurance (RSDI) claimants. As indicated previously this approach includes examining all prior material available in the case such as prior claims for RSDI benefits, all wage records available to SSA, a structured questionnaire not merely asking directly the person's income, resources and living arrangements but also his expenditure patterns, residences, number and location of children, etc., as well as subsequent confirmation of allegations with custodians of records and third parties. From this web of interweaving allegations we believe that we will gain a better vantage point from which to determine not merely the validity of the claimant's allegation but be able to offer meaningful conclusions regarding proper alternatives to the current intake and redetermination procedures.