Administrational and Organizational Aspects of Dialysis

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Introduction

Driving forces in medicine and health care will impact on the approach to the administration and organization of dialysis units. Some of the issues which must be addressed (and will be discussed in detail) include the following:

- cost containment and managed care,
- corporatization of dialysis,
- changing role of government,
- shift of Medicare secondary payment (MSP) from 18 to 30 months,
- workforce: number of nephrologists who will be available to care for the end stage renal disease (ESRD) population and the impact this will have on requirements for other members of the health care team,
- accountability (for physician performance, measures of quality and outcomes),
- consumer expectations/patient satisfaction,
- technology,
- patient care technologies, and
- data management and information/communication technologies.

When problems occur in patients with chronic illness, especially ESRD, the root of the problem is usually faulty systems rather than faulty physicians. With this background it is imperative that an excellent total delivery system be in place that ultimately results in quality of care for the dialysis population. Organizational flow diagrams may look good on paper, but the essence of success relates to completion of tasks and communication among those involved in care of the patient. General Dwight D. Eisenhower stated during World War II that before the battle is joined, plans are everything, but once the shooting begins, plans are worthless [1]. While plans are essential, only execution of those plans is what matters. Therefore, there has to be a clear understanding of everyone's role in a defined system and what responsibilities each person must fulfill. Completion of tasks is the bottom line and this necessitates all personnel being empowered to "own" part of system. There has to be a "buy in" by everybody involved for success to occur. Unless every member of the health care team can easily communicate with each other, problems will arise.

When developing the ideal organization/administration, new ideas need to be brought forth. Change will require new attitudes and there will be a need to embrace ideas that are foreign to us from a 1990's perspective. Differences will be noted if the dialysis unit is an independent facility or part of a large chain. The direction of the future is that alliances and networks will supercede the autonomous facility. Facilities belonging to national companies will require more uniformity in order to effectively address the issue of quality of care.

Practice guidelines, standards of care and algorithms will drive any new system and "free lance" approaches will not be tolerated because of the necessity to demonstrate proficiency that is mandated at both the regional and national levels.

tem. Payors and providers will now work in concert and replace the near-adversarial relationship that currently exists [3]. Quality of care, access to such care and cost effectiveness of the total delivery system will be the yardsticks to measure success.

Where is Managed Care Heading?

Changes occurring in medicine as a result of the rapid onslaught wrought by managed care have resulted in a shift from the previous laissez faire attitude (otherwise called fee-for-service reimbursement methodology).

Despite rising public criticism, managed care enrollment has continued to grow. In 1996, Medicare health maintenance organizations (HMOs) grew nearly 36% and Medicaid managed care membership rose by 58% [2]. In some markets, however, HMO enrollment has peaked or even declined. In markets like Boston, Cleveland and Los Angles, HMO membership enrollment dropped by 3 – 5% in 1996.

Market penetration for HMOs has now reached more than 50% in 10 major US cities. Forty-five percent of the nation's HMO members are enrolled in the 10 largest plans, an expression of the ever increasing consolidation. HMOs had decided to sacrifice growth for higher profits by raising premiums. More enrollees at lower premiums does not generate savings. Price hikes that are too high, however, have created openings for provider-sponsored HMOs and direct contractors.

Negative publicity generated by HMOs' focus on cost, cost and cost as the top three issues in health care has created a window of opportunity for physicians to take charge of every aspect of the health care delivery sys-

Fundamentals for a Successful Dialysis Unit

There must be a commitment to high quality, cost-effective and ethical renal care. Recognition and respect for the multi-disciplinary nature of the health care team is an essential backdrop for success. Professionalism must exist at all times, the guiding principles being honesty, integrity, accountability and commitment to scientific principles.

Organizational charts will need to reflect the goals of care and we need to create a system that maximizes responsibility in delivering quality care. When asked about his success as a battlefield commander, General George Patten stated, "when going into combat I told the troops what needed to be done, not how to do it" [1]. In essence, micromanagement does not work. Let qualified personnel come up with the solution to challenges and dilemmas. Accountability will be required for every member of the health care team as well as the patient. Patients will need to know what they must do to participate in the system.

Nephrologists will need to make the necessary transformation from clinician to manager by acquiring specific business skills or forgo a large segment of overall decision-making in the dialysis unit. A combination of clinical acumen and understanding systems management will be critical to participate as a major

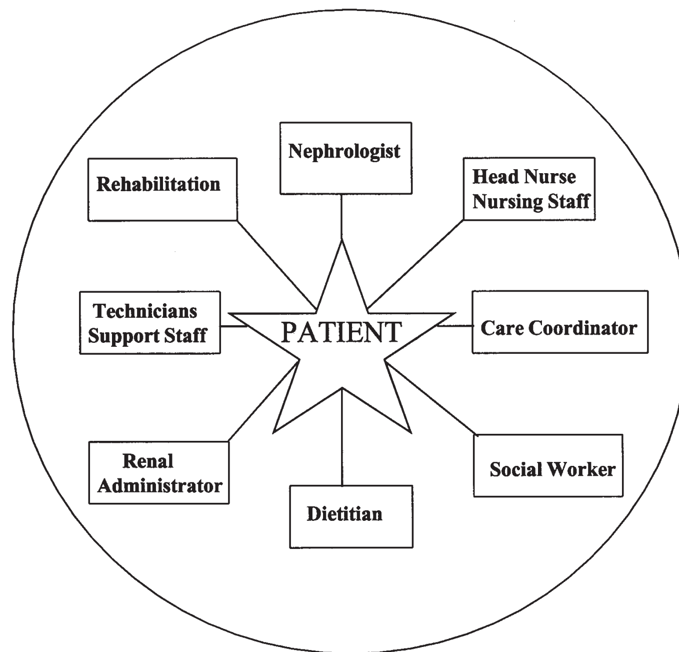

Figure 1. Circular integration: How the health care team relates to the patient in an integrated manner. The patient is the center of hub and all efforts are directed to improving quality of care and life. All members of the team coordinate care to achieve the desired goals.

player on the health care team. Credentialling of nephrologists in their new paradigm may be necessary so as to demonstrate effectiveness and value in the structure of the future. Corporatization will slowly envelop all of medicine, and nephrology will be in the forefront of change because of our longstanding history of government regulation and reimbursement via the monthly capitation payment (MCP) for care of the chronic dialysis patient.

It is imperative for every organization to create a vision and develop a mission statement. This mission statement should be the guiding principle by which all participants in the dialysis process should be held accountable. Vision should include the goals of organizing and coordinating the care of all patients within the defined population to enhance quality of, access to, and cost of renal care.

The mission statement should emphasize that a nephrologist-driven model for renal care will be the modus operandi. Since ESRD care is a disease management process, it is incumbent that the nephrologist be the coordinator of care for renal patients, accepting responsibility for both clinical and economic outcomes. Principal caregiver or primary care nephrologist (PCN) are terms that explain the role of the nephrologist in caring for the patient with ESRD rather than the term primary care physician (PCP). The scope of practice that should be delivered to the ESRD patient by the PCN has been developed and clearly delineates the responsibilities of the nephrologist [4]. A commitment to quality of care in a cost-effective environment will be espoused and delivery of this quality care will occur through the expertise offered by every member of the dialysis team. Appropriate information systems will facilitate the necessary communication among every member of the team (see below).

Relationships and personal connections, more than organization charts, will be the key to successful outcomes. Concepts of horizon-

tal and vertical integration will be the basis for any successful endeavor. These terms translate into a euphemism for dictated algorithms of care orchestrated by case (care) managers using all resources for comprehensive patient services that are fully coordinated and controlled by the dialysis unit team. Horizontal integration should actually be termed circular integration if viewed as the spokes of a wheel with the patient at the center of the hub (Figure 1). All systems and the personnel involved are designed to serve the patient's needs. If the design for a dialysis operation were being done by a corporation, cost may be placed at the center, profit margin being the driving force for decision-making. Later in the chapter the issue of finances will be addressed.

Performance improvement is part of the ongoing process to maximize patient care. Adapting an industrial process improvement model has been shown to achieve significant improvements in a hemodialysis (HD) program [5]. This model for improvement consists of well-defined steps for rapidly analyzing a problem and developing solutions. Typically, a department manager prepares a proposal, the proposal is then evaluated according to specific project selection criteria. Intensive implementation workshops are held to evaluate the problem and brainstorm ideas. Solutions are then implemented and the results tracked.

Key to the improvement process is an analysis of waste. This can include waste of time, idle time created when staff wait for people or machines, wasted movement of people or machines, efforts to add no value to the service received from the customer's perspective, waste of efforts spent on correction, and overstaffing.

For example, several sources of waste were identified in a hospital's HD unit [5]. The process included all members of the team, allowing them to develop the necessary solutions to problems they identified. Changes recommended by the team included the following:

– relocating the HD unit closer to the inpatient floors to cut down on patient travel time,
– reducing the floor space by nearly half to eliminate over-production waste,
– reducing supply inventory to a two-day level,
– using patient beds with scales to cut down the time needed to weigh bedridden patients,
– implementing improvements in patient transportation, and
– implementing measures that reduced the number of patients who could not complete the prescribed amount of treatment from 14% to 1%.

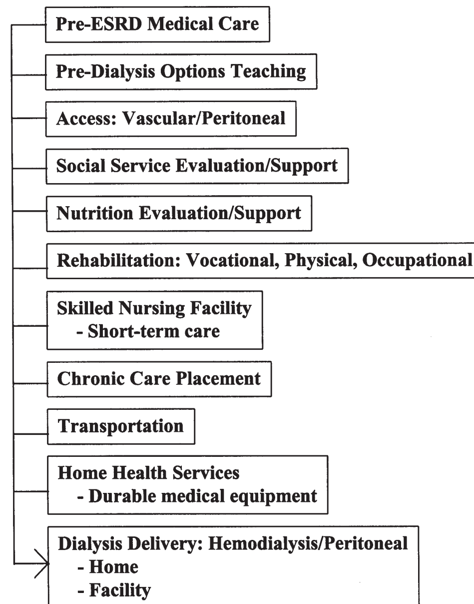

Figure 2. Vertical Integration: the continuum of service which need to be available to the patient with chronic renal failure, beginning in the pre-ESRD period and extending up to dialysis initiation and chronic treatment. Not every service will be used by all the patients.

	Dialysis Issues	
Task	How Achieved	Responsible Team Member
Dialysis Prescription	Establish goals	Nephrologist
Dialysis Delivery	Each treatment	Nursing/Technician Staff
Adequacy of Dialysis	Monthly lab review	Nephrologist
Social Service	Monthly review	Social Worker
Nutrition	Monthly lab review	Dietitian
Rehabilitation		
– Physical	Establish goals	Physical Therapist
– Occupational	Evaluation of home needs	Occupational Therapist
– Vocational	Employment status	Rehabilitation Commission
Scheduling	Written/Verbal communication	Head Nurse and Secretary
Water Treatment	Maintenance schedule	Technician
Supplies	Order schedule	Renal Administrator

Figure 3. Dialysis care team. Some of the issues which must be addressed on a regular basis. The entire team should meet monthly to review patient programs and dialysis unit issues. A core group of nephrologist, nurse, social worker, and dietitian must then sit down together with the patient on a regular basis at least 3 times/year to review goals, progress and achievements. Other members of the care team are added on an as-needed basis.

Table 1. Definitions of Practice Guidelines, Clinical Pathways and Clinical Protocols

Practice Guidelines: guide for decision making in an ambulatory care setting over time.

Clinical Pathways: procedure-based and used primarily in the in-patient setting.

Clinical Protocols: specialty-based consensus guides for management of complex/unusual diseases.

Vertical integration is all the services that should be in place to maximize delivery of patient care (Figure 2). If we are going to serve the total needs of the ESRD population, then every component of care, both in and out of the dialysis unit, should be planned in an integrated fashion. Cost-accounting the services can potentially be done in a capitated environment (See section on Finances). Let us now examine in-depth the actual meaning of circular (horizontal) and vertical integration, as seen through the personnel involved and the functions they perform. Figure 3 outlines the dialysis issues which need to be addressed by all members of the dialysis care team.

Circular Integration

The roles that need to be fulfilled for any organization must be accompanied by detailed job descriptions for every position. The job description would serve as a benchmark against which performance is measured. Certain terms and definitions need to be explicit so all members of the team are on the same

Table 2. Medical Problems Which Need to be Addressed During the Course of Renal Failure and with ESRD

- Hypertension
- Anemia
- Metabolic acidosis
- Renal osteodystrophy
- Nutrition

wavelength. Three key definitions are given in Table 1.

Role of the Nephrologist

Physician leadership is key to an integrated delivery system survival.

Quality of care will be scientifically driven by practice guidelines, best demonstrated practice and clinical pathways. Medical care areas which need to be addressed by the nephrologist are noted (Table 2).

While clinical guidelines are considered important mechanisms to improve quality of medical care, problems with implementation may limit their effectiveness. Use of a computer-based system for clinical guidelines for patient management can improve documentation and compliance with guidelines. Percentage of time spent on individual activities can decrease while also decreasing overall cost to the system [6]. Selecting guidelines to maximize overall population benefit can compete with selecting the best guidelines for individual patients. Use of cost-effectiveness analysis is necessary to make optimal decisions [7]. There is a need to prospectively and retrospectively validate guidelines to make sure that continued use is warranted. Outcome surveillance must be part of the feedback loop in validating guidelines [8]. Simplicity leads to success with clinical guidelines, the constant focus being on quality.

The nephrologist will be responsible for adhering to performance measures mandated by the Health Care Financing Administration (HCFA) and administered through the ESRD Networks. Integrated information needs to provide data for performance measurements and resource management techniques. Dialysis Outcome Quality Initiatives (DOQI) [9, 10] will be the starting point for practice guidelines. More guidelines are to follow, the process initially being started by the Renal Physicians Association's (RPA) first-ever nephrology guideline on adequacy of hemodialysis [11].

Algorithms exist for the above DOQI practice guidelines. In addition, management schemes for renal osteodystrophy, approach to vascular access, adequacy of nutrition, and management of hypertension in the dialysis population have been developed in local markets and will expand to the national scene. Forthcoming is a guideline on who should be started on and who withdrawn from dialysis. Evidence-based medicine, adhering to principles developed by the Agency for Health Care Policy and Research, will drive the positive changes designed to improve patient outcomes [12]. "Evidence-based medicine" has potential problems since it represents collective data and pertinent sub-groups formed by such cogent clinical features as severity of illness, co-morbidity and other clinical nuances can change situations. The laudable goal of making clinical decisions based on evidence can be impaired by the restricted quality and scope of what is collected as "best available evidence". Always remember the difference between a guideline and a mandate [13].

Key points of a practice guideline need to be culled out and presented in an annotated

algorithm. Algorithms are the best way to graphically represent the detailed process physicians go through in managing a patient and it can be computerized relatively easily. The format of the guideline is really immaterial, it is the way in which it is put together that is critical, always focusing on quality and scientific evidence. All guidelines should adhere to the same process.

- An evidence-based guideline developed by a reputable source.
- The guideline is submitted for broad nephrology peer review to determine if the guideline will improve the quality of care and if the scientific evidence supporting the guideline is acceptable to physicians.
- Data are collected both to demonstrate "quality gaps" in current practice and as a measure of improvement after implementation of the guideline. One of the least effective things in a quality improvement initiative is to make the performance objectives too obscure.

Continuous quality improvement (CQI) is a necessary and critical component of practice guidelines because it encourages each provider to look at their own program and define areas for improvement, then design action plans to meet these goals. A data feedback mechanism is the link in the system to provide physicians with their performance and compare it to colleagues within the region, network, state and nation. Identifying areas that need improved service is a natural sequence. Once data is presented it is important not to micro-manage physician behavior. Micro-management is time-consuming for physicians and it does not add value to patient care. The goal of CQI is to obtain the best results and physicians will usually respond to competition (keeping up with their colleagues), as long as the data is scientifically sound. Offer physicians the tools and data they need to deliver optimal medical treatment while also assisting patients in developing self-management skills. The future of practice guidelines can be framed in their being a point-of-reference in a decentralized health care system. The 18 ESRD networks can assist a dialysis unit in its region to pinpoint and correct problems. Guidelines and outcomes data generate great discussion. So often physicians assume that their colleagues treat patients much in the same way that they do, but when an evidence-based guideline or some other outcomes data are put on the table, it turns into serious discussions about practice variances, and that is where the changes start to happen [14].

Role of the Head Nurse and Nursing Staff

The head nurse should be the advocate for the nursing staff and technicians who care for patients. Making sure staff adheres to established protocols needs to be a primary responsibility. This individual also will be an active participant in evaluating outcomes data and participate in changes in medical technology. With large national dialysis chains it is imperative that the nurse always remain the voice for his or her staff rather than be seen as the bidding horse for the corporation.

The head nurse can develop a computer-based work schedule for all staff members as well as for rounding physicians and patient schedules. This approach helps track patients in-hospital, and it serves as a reminder to make sure that there is adequate communication between hospital and dialysis facility regarding the particular patient. Schedules are updated monthly and everyone knows who is available. A color coordinated scheme will allow easy identification and facilitate planned meetings around patient care. Such

Table 3. Components of Predialysis Education Program Provided by the Nurse Educator

– Utilize videos, booklets and other teaching tools to enhance dialogue
– Education on all modalities of ESRD care: Hemodialysis Peritonealdialysis Transplantation Living related donation Emotionally related donation (non-blood relation) Cadaver donation
– Explanation of patient responsibilities on dialysis

schedules can be programmed under a schedules option in the computer.

A vital role for a member of the nursing staff is options teaching for all new ESRD patients. One or 2 individual nurses should be assigned the task of educating patients about their specific options with regards to HD, peritoneal dialysis (PD) (various modalities) and transplantation (if appropriate). The options education nurse will coordinate all of the care initially and help walk the patient through the various aspects of the system they will encounter when starting dialysis (Table 3). Education information for patients should be multifaceted.

- A patient handbook concerning all options allows patients to read information and assimilate that which was discussed in person. The patient retention at initial verbal discussion will be minimal because of underlying anxiety.
- An individualized patient training plan should be recorded.
- A monthly patient newsletter acts to solicit patient input into the process. It will give the patient a "buy in" to the dialysis process and help them participate in their own care. Such a newsletter should be written by both staff and patients, highlighting the positive aspects of patient education. Participation in and discussion of unit issues can be raised in a newsletter. Scientific information about the significance of lab values can be highlighted. A newsletter format will allow the patient to read information outside of dialysis unit and will this information will reinforce positive patient behavior.
- Video tapes should be available which emphasize options teaching, compliance with dialysis prescription, patient awareness about chemistries, blood pressure control, and dose of dialysis. The National Kidney Foundation has a series of educational tapes that are "user friendly" and should be used with every formal pre-dialysis teaching and training program of patients. ESRD is a family issue and no member of the family should be excluded since family members help support the patient outside of the dialysis unit. The goal of education material is to empower the patient to participate in self-care.

In chronic illness, day-to-day care responsibilities fall most heavily on patients and their families. Effective collaborative relationships with health care providers can help patients and families better handle self-care tasks. Collaborative management is care that strengthens and supports self-care in chronic illness while assuring that effective medical, preventive and health maintenance interventions take place and nursing is the natural liaison in this process.

- Collaborative definition of problems: patient-defined problems are identified along with medical problems diagnosed by physicians.

- Targeting, goal setting, and planning: patients and providers focus on specific problems, set realistic objectives, and develop an action plan for obtaining those objectives in the context of patient preferences and readiness.
- Creation of a continuum of self-management training and support services: patients having access to services that teach skills needed to carry out medical regimens, guide health behavior changes, and provide emotional support.
- Active and sustained follow-up: patients are contacted at specific intervals to monitor health status, identify complications, and re-enforce progress necessary to implement the care plan [15].

The head nurse should publish unit specific results with regards to adequacy of dialysis (as measured by *Kt/V* or urea reduction ratio). Publication of results addresses the issue of dialysis unit accountability to the patients.

The head nurse should coordinate education for every member of the staff with regards to the concept of customer service. The patient must be treated like a valuable customer and therefore every individual interacting with the patients must undergo training about customer (patient) sensitivity. We often forget that the person who answers the phone in the dialysis unit can be the most important individual in the health care chain. From the physician on down, we must all recognize the value of patients and always respect their individuality.

With the introduction of the case (care) manager into the dialysis unit, it is important to note the distinction between the nursing staff and the care manager in an integrated system. Nurses provide direct care to patients in the dialysis unit and the care manager coordinates care across all settings encountered by the patient (which requires interacting with the patient).

Role of Case Manager/Care Coordinator

The traditional role of a case manager has been an individual who works for the insurance company/HMO/Managed Care Organization (MCO), serving mainly in the role of retrospective quality assurance (which translates into "why is this patient still in the hospital?"). Case management can be defined as a collaborative process that assesses, plans, implements, coordinates, monitors, and evaluates options and services to meet an individual's health needs. Communication and utilization of available resources help promote quality of care and cost-effective outcomes. The new case manager, more properly called the care manager, is an emerging key player responsible for attention to patient care and is an integral part of the dialysis team. This individual is accountable to the nephrologist. Patient evaluation by the care manager will occur both in the dialysis unit and at home, closing the loop that is often open. A more complete picture of the patient will result in an improved overall health care plan for the patient [16]. Understanding the psychosocial milieu of the patient will allow adaptation of an individual care plan designed to produce the best outcomes. For the patient who needs assistance/support, it is even possible for the care manager to accompany the individual to appointments outside the dialysis unit. This care manager will document improved quality outcomes and cost-effective resource utilization. The end result is that patients, health care personnel, administrators and payors are equally satisfied. Financial resources are necessary to pay these senior nurses with years of experience in dialysis and it is a worthwhile investment because of expected improved outcomes and reduced costs through coordinated and integrated patient services.

Reduced hospitalization days will be the major factor in reducing overall costs to the system. Since complications of vascular access are the most common cause for hospitalizations, monitoring the access on a prophylactic basis will hopefully decrease problems with access thrombosis, septicemia, and inadequate dialysis due to a failing fistula or graft. In addition, transportation to and from dialysis would be arranged via the cheapest means once all the issues on the patient's environment are understood. Excessive use of ambulance transportation, another major cost to the system, should decrease with detailed evaluation of the patient's total situation. Impediments to moving the patient along the entire continuum of care should be identified by the care manager, and this will allow for effective interventions to be initiated.

The ideal candidate for care management is a patient with clinically complicated diagnoses who consults multiple providers for a variety of health care decisions. Typically, this is a high-risk patient with serious co-morbidities and escalating disease. This description fits our aging dialysis patient [17]. Care management applied to ESRD is done through interaction with every member of the health care dialysis team, utilizing the resources in the facility and community to deliver the necessary patient services. Communication is a key element in the success of the renal nurse care manager, taking place during scheduled multi-disciplinary conferences, summarized information updates or specific meeting formats.

CQI tools with integrated managed systems offer a useful and effective means to process large amounts of data. Patient assessments and thorough data analysis help to identify those treatment areas that offer opportunities for greatest impact. Risk assessment can be done using the Index of the Disease Severity (IDS). This system allows patients to be characterized by the extent and severity of co-morbid conditions. Once the severity of the various co-morbid diseases are identified, the patient can be characterized into a low, medium or high risk category. Risk adjustment is essential before comparing patient outcomes across dialysis facilities. Several different severity measures are in place and it is critical to have a single measurement that best defines the dialysis population. At this time there is no single severity measure that has been defined and utilized for the ESRD population [17]. Managed care is outcomes-driven and the care manager is the necessary step that allows facilities to drive the best outcomes.

The Role of the Rehabilitation Specialist

There are 3 major components of rehabilitation: vocational, physical, and occupational. The goal is to maintain the patient in a healthy and productive state. Keep the patient in the workplace if at all possible, if that was the situation in the pre-ESRD period. Expert medical management, best delivered by the nephrologist in the role of principal care giver, provides the best chance for maintaining a healthy patient while chronic renal failure progresses toward the inevitable ESRD. Vocational rehabilitation should be started on a prophylactic basis, determining the needs for adaptation in the workplace to accommodate the patient's failing health and desire to remain productive. A liaison with the state/county/local rehabilitation commission should be part of the organizational/administrational design for the dialysis unit. Developing model programs that can be simulated in other regions is a way of serving the needs for all chronic renal failure patients.

Maintaining the patient in the workplace throughout the transition from progressive renal failure to ESRD has been shown to be cost-beneficial. A working patient has a better self image and fewer physical problems. The Life Options Rehabilitation Advisory Council (LORAC) has examples of model programs that facilitate the stated goal of workplace productivity [18]. For example, a temporary employment agency offered dialysis patients an introductory course on temporary secretarial work. For every 3 months the patients stayed employed at the temporary agency they were offered an additional training period to enhance their skills. Therefore, they became more valued employees (translated into a higher level of pay). Every 3 months the cycle continued, the patients learning greater degrees of computer skills and therefore becoming more highly valued workers. Permanent employment was the end result for a large percentage of the patients who initially entered the program, the work schedule adapted to the dialysis routine.

A program can only work if there is up-front attention paid to insurance issues. The patient cannot be penalized for accepting part-time or full-time employment while on dialysis if work proves to be an economic detriment. Innovative ways need to be created to prevent the working patient from losing health coverage/insurance benefits.

Physical therapy/rehabilitation should also be employed as a prophylactic measure. A detailed exercise program should be started for each individual as they progress towards ESRD. Keeping patients active and physically fit before dialysis is likely to enhance the quality of life once on dialysis. It is equally important for the patient on dialysis to continue to exercise. Exemplary rehabilitation practices have been established in a number of dialysis units and LORAC can provide a list of facilities that have received awards for their rehabilitation programs [19]. Exercising on dialysis achieves a greater degree of compliance with the designed program as compared to the patient attempting exercise at home as the initial step. Once the patient incorporates exercise as a routine matter, then a program of fitness can be continued at home. However, designing a program for home use at the outset if doomed to failure.

Renal rehabilitation is the process of helping dialysis patients resume productive activities, including independent living. As conceived by LORAC, the core principles of renal rehabilitation are the "five E's; Encouragement, Education, Exercise, Employment, and Evaluation" [20]. Using the five E's as the basic principles will help incorporate rehabilitation into the daily activities of a dialysis facility. Several issues should be addressed when starting a renal rehabilitation program. The following must be done to get started:

- establish pre-requisites for renal rehabilitation before the program starts,
- provide adequate dialysis,
- maintain good nutrition,
- manage anemia,
- maintain vascular access,
- build staff commitment,
- plan a rehabilitation program,
- identify a rehabilitation champion,
- designate a rehabilitation team,
- develop mission statement and goals,
- develop a program,
- identify renal rehabilitation resources,
- establish a facility baseline,
- assess facility resources,
- review staffing patterns,
- assess financial resources,
- identify potential sites,
- involve patients in your program,
- assess current patient rehabilitation status,
- discuss options with patient and family,
- match patients to appropriate programs,

– coordinate rehabilitation activities with patient schedules,
– evaluate your program,
– determine patient rehabilitation outcomes and satisfaction,
– measure staff satisfaction,
– modify your program as needed,
– collect success stories.

Following the above schemata will provide a template for moving forward [21]. LORAC has introduced the Unit Self Assessment Tool for Renal Rehabilitation (USAT) to help dialysis facilities assess their own renal rehabilitation programming [22]. USAT outlines basic, intermediate and advanced characteristics of good renal rehabilitation programs for each of the designated “five E’s”. Facilities can assess their programs by using this tool.

– Units without formal renal rehabilitation can use it as a checklist to identify programs that are serving rehabilitation functions.
– Facilities can select new ideas/strategies to implement.
– Units with problem areas can use it for suggestive solutions.
– It can be used as part of a CQI initiative, or to improve staff motivation.

Role of the Social Worker

A continuum of participation begins in the pre-ESRD period. The social worker will be an integral part of the patient’s care team from the very beginning, identifying the psychological needs of the patient and assisting in financial adaptation to dialysis. Every attempt will be made to have the patient remain in the workforce if that was the situation in the pre-ESRD period. Once the patient stops work it is very difficult to get that individual back into the workforce. Assisting the patient to participate with self-help groups will lead to a better informed patient. Examples of effective patient self-help groups include the National Kidney Foundation, the Polycystic Kidney Research Foundation, the Lupus and Scleroderma Foundation, the Kidney Transplant/Dialysis Association (Boston area), and the American Association of Kidney Patients (AAKP).

Discharge planning can be viewed in a broad sense and the social worker is best equipped to approach this issue. Whether it be transferring the patient from the hospital to rehabilitation facility or arranging for home health aide, the social worker can utilize the resources in the community to impact on the overall care delivery system. Discharge planning involves determination of resources necessary for the patient’s continued care during the course of illness, with the provision of assistance and guidance for these services. Home health care authorization and arrangement for ancillary services at home is part of the services. This critical piece of patient services contributes greatly to the quality of care and the social worker will assure the most appropriate services be utilized in accordance with best practice methodology. See Table 4 for a summary of social worker responsibilities when dealing with ESRD patients.

Role of the Renal Administrator

The administrative functions of the dialysis unit rests in this individual’s hands. This person will coordinate the care delivered by the physicians, nurses, technicians and support staff. Besides the obvious administrative issues, the renal administrator should keep abreast of all legislative issues. Interpretation of the significance of these issues needs to be shared with all the staff because it impacts on

Table 4. Some of the Social Worker Responsibilities in the ESRD Setting

- Support network for patient
  - family
  - self-help organizations
- Finances
  - insurance pitfalls
  - implications of remaining in the workplace regarding insurance coverage
- Transportation
  - parking vouchers
  - cab
  - chair car
  - ambulance
- Counseling
  - is there a need for short-term or long-term counseling?
- Placement
  - short-term rehabililtation
  - long-term nursing home/assisted living

the functioning of the dialysis unit. As part of a large dialysis chain, the renal administrator needs to coordinate the interaction between the corporate and the facility quality assurance committee.

Water Safety

Guaranteeing safe water is a critical issue that is often delegated to technicians, sometimes with a little oversight. Water needs to be safe and an effective purification system for HD must be in place because of potential life-threatening adverse effects. HD water purification guidelines have been established by the American Association of Medical Instrumentation (AAMI) [23]. Guidelines for water safety have been published by the Office of Device Evaluation, Center for Devices and Radiological Health, of the Food and Drug Administration (FDA) in the publication "Guidance for the Content of Pre-Market Notifications for Water Purification Components and Systems for Hemodialysis" [24]. The FDA recommends that pre-market notifications include:

- the name of the device, including trade/proprietary name as well as classification (i.e. water purification system for HD);
- a list of the establishment registration number, if applicable, and the owner/operator submitting the pre-market notification form;
- the generic class (Class II) and the panel (78 Gastroenterology/Urology);
- safety and effectiveness information (required by the Safe Medical Devices Act of 1990);
- copies of proposed labels and advertisements describing the component/system, its intended use and directions for use; and
- a comparison of the component or system to a legally marketed predicate device.

HD water purification issues should include reverse osmosis, deionization, water softness, carbon filtration tanks, sediment and cartridge filter, ultrafilters, ultraviolet disinfection units, and water storage tanks. The FDA has stressed the importance of safe and effective water purification systems for HD. Adverselly effects of inadequate or malfunctioning purification equipment include nausea, vomiting, anemia, hemolysis, metabolic acidosis, bone disease, neurological deterioration, pyrogenic reactions, and death. Addressing all of these issues needs to be under the responsibility of the renal administrator. The actual controlling and monitoring of the water treatment equipment to improve dialysis patient outcomes should be part of the job description for the

technician assigned this responsibility [25]. Problems related to water safety have been the cause for several law suits with large settlements to injured patients or their families (in cases of death).

Administrators must include all members of the patient care staff in the implementation of the DOQI guidelines. The skills in data collection, analysis, and intervention that the clinical and technical staff learn and practice because of the DOQI guidelines will improve clinical outcomes and prepare them to transfer those skills to other ESRD problem areas [26].

Patient

The patient is the center of the wheel and all the spokes of the health care team relate and connect to this individual. Patient rights and responsibilities must be defined. The American Association of Kidney Patients has adopted a statement of patient rights and responsibilities from ESRD network #15 [27]. Such a statement is an important part of a patient's care, the expectation being that observance of such a statement will contribute to more effective care and greater satisfaction for both patients and staff. Every patient has the right to be treated with respect, dignity and consideration of his or her rights as an individual by everyone involved in their care. Privacy and confidentiality are critical during case discussions, consultation, examination and treatment. All communications and records about patient care are to be treated as confidential, the patient retaining the right to approve or refuse release of records to any individual outside of the facility, except if there is transfer to another health care institution, or is required by federal, state, or local laws. It is the responsibility of the patient to treat the staff with the same respect and individual consideration as the patient expects for him- or herself. Honesty and directness about everything that relates to the patient's care must be forthcoming from the patient. A guiding principle, starting in the pre-ESRD era and continuing throughout the dialysis experience, is that the patient must be aware of all the options that are medically appropriate for them. Discussions about transplantation with a patient who is not an obvious transplant candidate should not be undertaken. At all times patients should understand the medications they are taking, the purposes for such and potential side effects. Pamphlets should be distributed to patients in their primary language (if possible) after an educational session so the process of education can be reinforced at home. In addition, patients should have a clear understanding of their dietary prescription.

"Advance directives" should be part of every facility's patient care plan since these directives protect the patient's rights to refuse or limit future medical treatment if the individual becomes unable to communicate their wishes. The concepts of living wills and medical durable power of attorney should be presented to patients.

Once dialysis starts, the patient should be informed about the dialysis prescription and desired goals of treatment. Clearance methods should be briefly explained and the particular method used by the dialysis unit to measure adequacy of dialysis needs to be noted. Patient expectations for compliance with their dialysis prescription (showing up on time and staying for the prescribed duration of treatment), taking prescribed medications, and following the dietary prescription should be part of a described agreement. If patient proves to be non-compliant with any aspect of their regimen, a written contract should be drawn and the patient made to understand the seriousness of their behavior. Repeated non-compliance

should result in the patient being told they should seek another dialysis program or begin home HD/PD. If transfer to another facility is necessary, it is the patient's responsibility to secure the services of a nephrologist to provide medical management at that new facility. Patients should be told that it is unfair to ask members of the health care team to participate in inadequate care. Why should the team do more for the patient than that individual is doing for him- or herself?

Integrated information systems that provides data for performance measurements and resource management are critical for any facility to function effectively in the context of circular integration. The goal is to turn data into information for effective disease management. Such an information system should facilitate patient management, create a seamless coordination of benefits, and support health maintenance from office to dialysis unit to hospital to home. With so many personnel involved in the care of the ESRD patient, there is a critical need for information to be readily available to maximize patient care. Patient confidentiality would be protected by the "need to know" principle. The computer log-on code would provide only the information that is pertinent for the particular member of the health care team to deliver services.

Users of the health care system (consumers) must have their perspectives incorporated into any measure of quality. It is important to know the patient's perspective of the "definition of quality". Patient satisfaction is not always equated with quality since amenities (e.g., food, parking, cleanliness) are frequently confused by the patient as measures of quality when they actually reflect satisfaction. Satisfaction implies only that expectations have been met. Patients can be satisfied with care that is not high quality and they can be dissatisfied with quality care [28]. The Kidney Disease Quality Of Life (KDQOL) questionnaire has been shown to be an effective tool in measuring quality as viewed from a patient's perspective. Methods need to be developed for dialysis patients that adequately reflect quality in terms they can understand. Summary evaluations need to be an immediate goal so patients can be further empowered to be active participants with their care on dialysis. It is always critical to remember that patient satisfaction is most correlated with an individual's ability to choose their personal physician in an HMO [29]. Patients who are assigned physicians in dialysis units for coverage purposes can be dissatisfied at the outset. Patients satisfaction can also be related to public release of consumer reports. If patients know other individuals are satisfied with their care it may assist patients in making informed health care choices. This approach can also facilitate improvement in quality of care because of competitive marketplace forces [30].

Workforce

Given the increasing oversupply of physicians, the American College of Physicians recommends that no new medical schools be created, that total enrollment in the United States medical schools not increase, and that the number of international medical graduates entering residency training in the United States be restricted [31]. Since the number of first-year residents will likely be linked more closely to the annual number of medical graduates in the United States, Medicare payments for medical education and training will be made only to HMO's that actually incur education and training costs.

Changes in the direction of internal medicine training will impact nephrology (as well as every other medical subspecialty). The bottom line is that there will not be an increase in

the number of nephrologists trained over the next decade. Therefore, in order to meet the needs of the ESRD population, our delivery system of care will have to change. There will be too few nephrologists to deliver care to the growing dialysis/transplant population as viewed from a 1990's perspective. Use of alternative caregivers will be employed to a greater extent than ever before, especially the number of health service coordinators/case managers/care managers will increase. Physicians will delegate day-to-day management issues to other members of the health care team, the nephrologists focusing on the major medical problems that reflect his or her expertise. Such coordination of care will only be effective if a communications system is operational. This will require a commitment for all individuals to utilize a computer communication system so that there are no gaps in patient care as a result of inadequate communication. Those physicians who do not become computer literate will find their roles delegated to other individuals who know how to effectively communicate.

Issues related to workforce evaluation and needs for nephrology up to the year 2010 have been addressed by the Workforce Needs in Nephrology Task Force [32]. The combined efforts of the American Society of Nephrology, American Society of Pediatric Nephrology, American Society of Transplant Physicians, National Kidney Foundation and Renal Physicians Association produced a study that provides various scenarios estimating annual needs for nephrology trainees through 2010. Graduated projections for nephrology trainees are based on the rate of growth of patients with ESRD, physician full-time equivalent (FTE) needs for renal patient care, and ESRD mortality rates relative to current levels. The Task Force report is worthwhile reading because it views future training needs for nephrology, recognizing that the state of medical care, biomedical research and academic medicine are in astonishing flux. The issue of Foreign Medical Graduates (FMGs) and their impact on nephrology, especially in light of changing legislation, is noted in detail.

Finances

Financial management of the entire dialysis process requires expertise that evades most nephrologists. There is the need to find expert help to define cost parameters, track funds management and assist with contract negotiation. All of the large dialysis chains have financial departments in place. However, there are several areas that should be understood by the nephrologist, the major question being what is the cost effectiveness of test- and treatment strategies [33]. In the present era of cost-containment, physicians need reliable data about specific interventions. How to interpret economic analyses and estimate their own costs of implementing recommended interventions is a necessary learning step for the nephrologists.

Statements regarding cost without substantiating data are made habitually in reports from dialysis units, especially in the hospital setting. Data on expenditures, start-up costs, and general overhead are frequently neglected in looking at the bottom line. There is a need for cost data in a standardized protocol so that missing data can be detected. A bridge between care delivery and economic analyses is a necessary link [34].

The market is now headed by 3 vertically integrated mega-providers. Fresenius Medical Care (FMC), Gambro Healthcare, and Total Renal Care (TRC) provide dialysis for more than half the United States ESRD population. A number of other organizations are growing and are definitely large-scale provid-

ers (e.g. Renal Care Group), with further consolidation on the near horizon. Large national chains have definitely changed the delivery of care. Data management has improved, but doctor-patient interaction has suffered. In many cases, the doctor-patient relationship has become a nurse-patient or staff-patient relationship, reflecting a decrease in physician presence in the dialysis unit. The patient has often become a pawn in the "return on investment" game that results from the selling of individually-owned dialysis units to one of the national companies [35].

The publicized rationale for consolidation is to obtain economies of scale (i.e. reduce administrative overhead by eliminating duplication). Over the past 2 decades the dialysis landscape has changed dramatically, related in part to increasing regulation as a consequence of government experiences with escalating costs beyond the anticipated projections. Declines in reimbursement have led medical entrepreneurs to seek individuals skilled in business management to help run their medical operations. Cost control as a major issue has occurred as a result of the composite rate payment schedule for dialysis. Larger organizations negotiate better pricing for supplies. In vertically-integrated organizations, much of the equipment and disposables will be supplied internally. This internal supply line apparently represents significant savings since the marketing and distribution costs can be virtually eliminated. At times the focus on the patient can be lost in economic wranglings.

Financial compensation for nephrologists is rapidly changing. The old days of fee-for-service in an unfettered manner is over. Capitation can be employed as a method of payment that encourages routine care and a modified fee-for-service may be utilized for circumstances defined as extraordinary [34]. A new approach for reimbursement could be the single specialty (nephrology) carveout from a payor [36]. Advantages of such a carveout system include:

- the payor's ability to transfer risk to the physician group,
- the ease of negotiating a single-specialty carveout with the payor than a global capitation contract (for all services to be delivered),
- a possible increase in practice volume and thus physician income (assuming that the reimbursement is adequate),
- participating single-specialty independent practice associations' (IPAs) exclusive contracts with the payor,
- forcing the physician to closely observe his/her practice efficiency,
- a long-term relationship between physician and payor if your physician group is the first in the market and your group's performance has become known to the payors, and
- negotiation of a contract with multi-specialty IPAs, which can get access to more of the premium dollar because of a demonstrated track record with payors.

There must be detailed explanations of how bonuses will be allocated among the physician group. In a managed-care capitated environment, physicians should be eligible for incentive pay based on improved outcomes, open access to care and patient satisfaction results [34]. Reimbursement incentives should never be tied to cost savings generated by denial of services.

An information booklet must be maintained in a dialysis unit that details issues of financial concern involving the patient [37]. Evaluation and management services expected as part of the monthly capitation payment (MCP) should be a clear statement for patients to understand. This is a critical reminder to physicians of their responsibilities to the patient.

For physicians themselves there must be a similar booklet that notes the required documentation for every level of service. Physicians need to know how billing is done within Medicare regulations. This booklet will need to be updated because of the rapid changes that are occurring in the area of reimbursement. The steady shift of all segments of the population from a fee-for-service to a capitated environment mandates constant physician updating.

There is a demonstrated need to avoid unnecessary test-treatments when viewed in the context of quality adjusted life year (QALY) [38]. Physicians will need to understand the issues of sensitivity analysis when viewing such QALY, which relates to the value of a specific strategy (test or treatment) as viewed by the general public (e.g. how much should society pay for an intervention when considering the benefit to the patient and society?).

Optional dialysis treatment requires an informed patient, a dedicated staff, modern equipment and computer facilities that will provide relevant information.

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