Perinatal Care:
The Threat of Deregionalization

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Beginning in the early 1970s, regionalization of perinatal and neonatal care has been instrumental in improving patient outcomes. During the 1980s, however, the American health care scene has witnessed dramatic changes which may limit our ability to maintain regionally organized systems of care. These include prospective payment replacing retrospectively fee-for-service reimbursement, hospitals competing for increasingly scarce inpatient days, and HMOs capturing market share from traditional indemnity insurance plans.

Each of these new factors is capable of altering perinatal regionalization as we have known it, and each is relevant to the future organization and delivery of perinatal care. It has become imperative that the perinatal community re-evaluate many traditional assumptions in light of this changing environment.

BACKGROUND OF REGIONALIZATION

Regionalization of health services is basically an alien concept to the mainstream philosophy of American health care. It connotes centralized planning and funding, a situation typically resisted by health care providers in the US. The most serious effort by the federal government to regionalize hospital services was for heart, cancer, and stroke through the Regional Medical Program, which failed in its mission. In a parallel effort, some limited success was made in regionalizing emergency medical services, but for the most part this occurred outside the hospital in the organization and training of rescue units. The pitched battle over identified trauma centers still remains.

It is, therefore, quite remarkable that regionalization of perinatal care in the US has taken place to the extent it has. The success of this effort speaks more to the commitment of the perinatal leaders who espoused the concept than to the larger health care community that reluctantly embraced it. In the early 1970s four major medical societies convened the Committee on Perinatal Health with the assistance of the March of Dimes. The Committee deliberated over the course of a year and generated Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Maternal and Perinatal Health Services, which delineated three distinct levels of care.¹ The purpose was to marshal the scarce resources available for high risk neonatal and obstetrical care into tertiary centers large enough to sustain the cost and commitment of a regional program. In this manner, technology transfer

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was institutionally focused to provide maximum benefit to patients and thereby reduce perinatal mortality and morbidity. The regionalization concept came to this country at the right moment. Not only did it parallel the explosive growth in the knowledge base of those serving high risk mothers and infants, but it also came at a time when access to hospital care could be assured and reimbursement guarantees were becoming nearly universal. By the early 1970s, the Medicare program was well established and Medicaid had been implemented in all but one state. These public programs guaranteed some level of payment for a much larger segment of the hospitalized population, and usually included a provision for bad debt and free care to the medically indigent. Hospitals became better able to plan and support capital expenditures and program development at an unprecedented rate.

Regionalization was, therefore, an idea whose time had come. With encouragement from pilot programs funded by the Robert Wood Johnson Foundation and from programs supported by the states, perinatal regional care prospered during the 1970s. For the most part, the success of these programs correlated highly with the diplomatic skills of the perinatal leadership and the financial support of tertiary referral centers. The ability to gain support from community physicians and the primary hospitals they staffed was a difficult task and stands as one of the great successes of regionalization. Over the course of the decade, the regionalization of neonatal intensive care in particular was highly successful. The regionalization of maternal/fetal care has lagged somewhat behind and remains problematic in many areas of the country. Nonetheless, there is general agreement that the regionalized approach to organizing perinatal services, even with its faults, has been a successful measure in improving perinatal outcomes. 3,10

RECENT CHANGES AFFECTING REGIONALIZATION

The American health care scene has changed dramatically since inception of the regional movement. In 1983, the United States embarked not on a national health insurance program as had been previously predicted, but on a national reimbursement methodology in the form of the prospective payment system. The fundamental principle behind this new financial pro-

gram for hospitalized Medicare patients was case-specific reimbursement based on a fixed fee. The perinatal community, with some exception, was relatively unconcerned with this new development because it affected the elderly and segments of the hospital far removed from the maternal/fetal and neonatal intensive care programs.

What was missed by the perinatal community were the dramatic changes occurring in the overall rules for health care reimbursement, which were spearheaded by the Medicare DRG system of payment. Also missed were the implications these reimbursement changes held for hospital behavior. Competitive free market forces descended on health care, and by 1985 the relevance of regionalization as it had been conceived a decade earlier was significantly diminished. Regionalization depended upon the widespread cooperation of referring hospitals and on the ability of tertiary centers to underwrite high risk programs by shifting costs from programs and services that operate at a loss to those that generate a surplus. However, the newly emerging emphasis on competition among hospitals, cost containment, and managed health care made altruistic cooperation in regional programs uncertain.

NPIC STUDY OF REGIONALIZATION

The National Perinatal Information Center (NPIC) is a non-profit, membership organization created in part to assist the perinatal community in understanding and coping with the implications of such changes in the health care environment. In early 1988, the NPIC completed a two-year study funded by the Robert Wood Johnson Foundation to examine the original concept of regionalization, as well as its applications and manifestations across the country. This study, in its broadest sense, was designed to describe regionalization 10 years after its inception and to identify how the dynamic health care environment is or is not impinging upon its structure and functions. 2 Using a case study approach, over 225 personal interviews were conducted in 35 hospitals distributed across six geographic areas. These case study sites were Chicago, Seattle, Salt Lake City, Fort Worth, Cleveland, and Minneapolis.

In general, the study showed that regionalization, like art, is frequently in the eye of the beholder. Regional systems were often built on the strength of the organizer's personality and upon existing hospital relationships, rather than any preconceived structure. Therefore, application of the regional concept differs greatly from place to place. The Table identifies the degree to which perinatal regionalization was perceived to exist locally by key leaders and perinatal professionals in each study area. These ratings represent the consensus opinion of the more than 225 physicians, administrators, and other health care providers interviewed in the above cities.

In Cleveland and Minneapolis, the impact of competition and alternative delivery systems has already
### TABLE

**Perceptions of Perinatal Regionalization**

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<thead>
<tr>
<th>Site</th>
<th>Degree of Regionalization</th>
<th>Level of Agreement</th>
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<tbody>
<tr>
<td>Chicago</td>
<td>High</td>
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<tr>
<td>Seattle</td>
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<td>Salt Lake City</td>
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<td>Ft. Worth</td>
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<td>Cleveland</td>
<td>Moderate</td>
<td>Low</td>
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<td>Minneapolis</td>
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changed these areas from highly regionalized to moderately regionalized. Minneapolis, in particular, is typified by mixture of perinatal relationships, all of which are subject to alterations by HMOs and multihospital systems which can shift large blocks of patients with the stroke of a pen. That is, market forces can both create and destroy regional relationships. This has divided the perinatal community, which displayed sharp differences of opinion about the current status of regionalization in Minneapolis.

The most dramatic influence on the perinatal regional movement in Minneapolis has been the growth of HMOs and other managed health care systems, which further fuel the competitive tensions now existing among hospitals. These organizations encourage price competition and select hospitals on their ability to provide a comprehensive array of services in a cost-effective manner. There is nothing intrinsically wrong in this process. Unfortunately, it does intensify the burden of caring for the inner city poor, which is already shouldered by the urban teaching hospitals. Such hospitals must support indigent care with a shrinking financial base, while suburban community hospitals offer a broader range of high risk services to more successfully compete for managed care contracts. This places regionalized care in jeopardy.

In addition, the technology of neonatal intensive care is no longer the exclusive preserve of heavily funded academic centers. The prevalence of "town/gown" hostility and the need to be more competitive have encouraged primary hospitals with large birth cohorts to become Level IIIs and even Level IIIs. The ease of technology transfer, the competence of recently trained pediatricians, and the surplus of neonatologists feed into this phenomenon and enable it to occur.

The Achilles heel of the regionalization movement is often identified as this proliferation of Level II centers. With some consistency, tertiary level perinatal centers are most disturbed by this movement and are frequently dogmatic about adhering to the referral guidelines of the past. Viewed from the tertiary perspective, Level II upgrades are often seen as profit motivated and as resulting in compromised quality of care. In contrast, community hospitals often characterize Level IIIs as clinging to antiquated and unrealistic visions of how regionalization used to be and, by implication, still should be, with no regard for the competitive and litigious pressures to which hospitals must now respond. The resulting adversarial relationships intensify the negative aspects of competition and further fragment the perinatal community. The most successful regional programs continually focus on the need for good relationships with all providers in a given region.

If we were to profile a strong regional program for perinatal care, based on study findings, it would include the following elements:

- a perinatal center of recognized excellence;
- an adequate supply of well-trained specialists, primary care physicians, and perinatal nurses providing a high quality of care in Level IIs and IIIs, as well as in the tertiary center;
- accepted, defined roles and standards of care for Level I, and especially Level II facilities which refer to and receive back transfers from the perinatal center as appropriate;
- identification, referral, and care for high risk mothers which compares favorably to accepted state of the art for high risk neonates;
- adequate systems in place and periodically reviewed and updated for accomplishing traditional perinatal center functions such as infant transport and outreach education—especially morbidity and mortality review; and
- a strong financial base and an ability to provide resource intense care in a cost-effective manner.

This ideal rests on defining roles and standards. Clearly, if progress is to be made in a regionalization renaissance it must focus on defining appropriate roles.
for these hospitals vis a vis moderate risk patients. The challenge to the neonatal community in the era of competition is to rethink how these patients can best be served. If this goal is achieved through cooperation rather than competition with the regional perinatal referral center, then the tertiary facility can maintain a reasonable level of influence over standards of practice and quality of care.

NPIC study findings illustrate that a narrow focus on the structural elements of the region, such as level of care definitions, is not sufficient in an environment driven by reimbursement today and increased price competition tomorrow.

THE FUTURE OF PERINATAL REGIONALIZATION

In only a few areas of the country do hospitals or other health care providers experience the full brunt of prospective payment or managed health care systems. However, forecasts identify continued significant growth of HMO and PPO subscribers along with additional Medicare and other cost constraints. Common responses to these changes will be consolidation of hospitals into more cost efficient multihospital chains, increased control of and competition for large blocks of patients, growing constraints on physician autonomy, and greater control over consumer selection of health care providers.

A valuable, although an albeit imperfect, view of the future is manifest in the Twin Cities area of Minneapolis-St. Paul, which is something of a bellwether for major metropolitan areas throughout the country in terms of health care organization, delivery and reimbursement. Minneapolis is overbedded for both acute care and obstetrical beds when compared with the country as a whole. The city has a large number of corporations involved in the service industry, a large well-educated middle class, and is the home of Interstudy, the "think tank" for the HMO movement. All these factors facilitated the growth of HMOs in this state, which have now captured over half of the private insurance market in Minneapolis.

HMOs were able to place hospitals with their bed excesses at a distinct negotiating disadvantage in this highly competitive market, and individual hospitals were extremely vulnerable. As a result, hospitals have gradually organized into larger and larger systems. Some of these multihospital chains have created their own regional networks and ignore the original university and county perinatal networks created in the 1970s. In effect, the level and intensity of competition has created a new regional system based as much on market forces as on voluntary compliance. This is obviously not a classic approach to regionalization.

A very complex perinatal care delivery system has evolved from this highly competitive environment. There are currently four neonatal intensive care units in Minneapolis, plus two in neighboring St. Paul, serving the 36,000 births in the greater SMSA, as well as many rural areas of the state. The Minneapolis NICUs vary dramatically in scope and service area. They consist of:

- a consortium arrangement between a children's hospital linked to a general acute care hospital on the same campus with a high Level II nursery and an advanced maternal/fetal outreach program. This consortium serves as the referral center for high risk mothers and infants for most of the city and some surrounding areas;
- a university hospital NICU which serves as a resource for transfer of high risk neonates from other areas of the state;
- an NICU at the county hospital which also serves one large Level II hospital adjacent to it; and
- a suburban Level III which serves primarily its inborn population.

Minneapolis's complicated perinatal system can be depicted according to the schematic depiction in the Figure.

The same market forces which contributed to the evolution of such a hybrid scheme of care are still at work and remain capable of further rearranging the perinatal structure in Minneapolis. A logical next step...
Brief Summary
Tavist® (clemastine) Syrup 0.5 mg/5ml
(present as clemastine fumarate 0.67 mg/5ml)

INDICATIONS AND USAGE: Tavist (clemastine fumarate) Syrup is indicated for the relief of symptoms associated with allergic rhinitis, such as sneezing, rhinorrhea, pruritus, and lacrimation. Tavist (clemastine fumarate) Syrup is indicated for use in pediatric populations (age 6 years through 12) and adults (see DOSAGE AND ADMINISTRATION). It should be noted that Tavist (clemastine fumarate) is indicated for the relief of mild uncomplicated allergic skin manifestations of urticaria and angioedema at the 2 mg dosage level only.

CONTRAINDICATIONS: Antihistamines are contraindicated in patients hypersensitive to the drug or to other antihistamines of similar chemical structure (see PRECAUTIONS—Drug Interactions). Antihistamines should not be used in newborn or premature infants. Because of the higher risk of antihistamines for infants generally and for newborns and premature infants, antihistamine therapy is contraindicated in nursing mothers (see PRECAUTIONS—Nursing Mothers).

WARNINGS: Antihistamines should be used with considerable caution in patients with narrow angle glaucoma, stenosing peptic ulcer, pyloroduodenal obstruction, symptomatic prostatic hypertrophy and bladder neck obstruction. Use with CNS Depressants: Tavist (clemastine fumarate) has additive effects with alcohol and other CNS depressants (hypnotics, sedatives, tranquilizers, etc.).

Use in Activities Requiring Mental Alertness: Patients should be warned about engaging in activities requiring mental alertness such as driving a car or operating appliances, machinery, etc.

Use in the Elderly (approximately 60 years or older): Antihistamines are more likely to cause dizziness, sedation, and hypotension in elderly patients.

ADVERSE REACTIONS: The most frequent adverse reactions are underlined.

Nervous System: Sedation, sleepiness, dizziness, disturbed coordination, fatigue, confusion, restlessness, excitation, nervousness, tremor, irritability, insomnia, euphoria, paresthesia, blurred vision, diplopia, vertigo, tinnitus, acute labynathy, hysteria, neuromuscular convulsions.

Gastrointestinal System: Epigastric distress, anorexia, nausea, vomiting, diarrhea, constipation.

Respiratory System: Thickening of bronchial secretions, tightness of chest and wheezing, nasal stuffiness.

Cardiovascular System: Hypotension, headache, palpitations, tachycardia, extrasystoles.

Hematologic System: Hemolytic anemia, thrombocytopenia, agranulocytosis.

Genitourinary System: Urinary frequency, difficult urination, urinary retention, early menses.

General: Urticaria, drug rash, anaphylactic shock, photocompatibility, excessive perspiration, chills, dryness of mouth, nose and throat.

DOSAGE AND ADMINISTRATION: DOSAGE SHOULD BE INDIVIDUALIZED ACCORDING TO THE NEEDS AND RESPONSE OF THE PATIENT.

Pediatric: Children aged 6 to 12 years:
For Symptoms of Allergic Rhinitis—The starting dose is 1 teaspoonful (5 mg clemastine) twice daily. Since single doses of up to 2 25 mg clemastine were well tolerated by this age group, dosage may be increased as required but not to exceed 6 teaspoonfuls daily (3 mg clemastine).

For Urticaria and Angioedema—The starting dose is 2 teaspoonfuls (11 mg clemastine) twice daily, not to exceed 6 teaspoonfuls daily (3 mg clemastine).

Adults and Children 12 Years and older:
For Symptoms of Allergic Rhinitis—The starting dose is 2 teaspoonfuls (11 mg clemastine) twice daily. Dosage may be increased as required, but not to exceed 12 teaspoonfuls daily (6 mg clemastine).

For Urticaria and Angioedema—The starting dose is 4 teaspoonfuls (22 mg clemastine) twice daily, not to exceed 12 teaspoonfuls daily (6 mg clemastine).

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Store and dispense: Below 77°F (25°C) tight, amber glass bottle. Store in an upright position.

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Deregionalization

Viewed from the tertiary perspective, Level II upgrades are often seen as profit motivated and as resulting in compromised quality of care.

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is to fractionalize the large perinatal consortium network operated by the children's private hospital consortium to parallel more closely multihospital system lines.

It seems inevitable that perinatal regionalization in the future will continue to change across the country and will take on the complexion of a system such as is now developing in Minneapolis. Regionalization in the future must be able to cope with an altered reimbursement environment and a changing health care scene. The reality of multihospital systems, managed health care, and cost containment must be an intrinsic part of any future plans.

Although the changes will be difficult and the providers will need to adapt, patients can still be served and their outcomes continue to improve. In reality, this remains the intent of regionalization and should not be lost in the midst of frayed nerves that pine for the greater simplicity.

REFERENCES