OFFICE OF THE ASSISTANT SECRETARY FOR HEALTH
Room 713E, 200 Independence Avenue, SW
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fax transmittal

to: Kenneth Thorpe/Rose Chu / Jennifer

fax #: 703-941-3951

from: Lisa Simpson, MB, BCh, MPH

date: 4/19/94

re: Medical Foods

pages: , including this cover sheet

NOTES: Ken, here is background for Rose et al at ARC. Let me know if you need anything else.

Call if you have any questions.

Jen - I only attached Holly's #s - the others are voluminous pages of stuff -

NOTE TO JENNIFER KLEIN, KEN THORPE, ROSE CHU

Medical Foods and Insurance Coverage

- The primary inherited metabolic disorders are:
  - PKU - 1 / 10,000 to 1 / 25,000 live births (1990 CORN data is 1:13,000)*
  - Galactosemia - 1 / 42,000 LB (1990 CORN data)* to 1 in 80,000
  - Tyrosinemia - 1 / 20,000 to 1 / 160,000 (CORN data)* LB
  - Glutaric Acidemia - 1 / 30,000 [in Sweden] LB*
  - Homocystinuria - 1 / 50,000 to 1 / 155,000 LB (latter is 1990 CORN data)*
  - Biotinidase - 1 / 61,000 to 72,000 (1990 data from 14 states' screening progs.)*
  - Maple Syrup Urine Disease - 1 / 250,000 to 1 / 300,000 LB*
  - Methylmalonic Aciduria - 1 / 20,000 to 1 / 50,000 (1990 CORN data)* LB
- Using numbers provided by Holly Wolf (attached) there are between 972 and 1,389 live births each year with one of these conditions.
- PKU has been estimated to make up 1/4 of all inborn errors and has a patient population of about 15,000.
- PKU treatment programs are now recommending keeping children/adults with inherited metabolic disorders be kept on supplemental diets for LIFE.
- Medical foods or formulas are usually used to provide supplemental calories and nutrients to make up for the often very restrictive diets that these patients must follow in order to ensure that children grow and thrive.
- 1988 survey of state treatment programs for PKU and selected other inherited metabolic diseases showed:
  - family health insurance has grown as a source of coverage for families from 37% in 1982 to 56% in 1988;
  - discussions with treatment program staff in California reveal that they are usually able to get insurance coverage for formulas;
  - State health departments' children with special health care needs programs (Title V programs) also cover formula for lower income children, or when insurance denies.
- At least 14 States have mandated coverage for PKU. All of these include coverage of the medical food in their mandate.
- Attached are data from both Holly Wolf (PKU Network) and an analysis by one of the companies that produces these medical foods. It is not clear how accurate either of these estimates are but they should provide a range for estimation. The numbers provided by SHS are wholesale and could include a 10% to 150% markup for a retail price.

Children's PKU Network

10515 Vista Sorrento Pkwy.
San Diego, California 92121
Phone (619) 587-9421
Fax (619) 450-5034

Holly Howard Wolf
Founder and President

FAX TRANSMITTAL

To: Asst. Secretary of Health Office

From: Holly H. Wolf

Reference: Medical Food Trtmt. Cost

Attn: Dr. Lisa Simpson Senior Hlth Policy Analyst

Date: April 15, 1994

Time:

Fax: (202) 690 5432

# of Pages Sent: 5

Remarks:

Dear Dr. Simpson:

It was a pleasure speaking with you yesterday. I apologize for the delay.

First of next week I can supply you with additional information as needed. Please contact Bobby Silverstein of Senator Tom Harkin's office and Bill Schultz of Congressman Waxman's as well as Faye Drummond of Senate Finance Committee. I think this would be a prudent thing to keep all abreast of activities.

Look forward to working with you.

Sincerely,

Holly H. Wolf
President, Founder

P.S. I failed to include Dr. Dunn and Dr. Marty Seig-Ros both staff on Labor Human Rsces Committee

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Holly Howard Wolf
Founder and President

April 14, 1994

To Whom It May Concern:

The following schedule lists some of the inborn errors of metabolism which are medically dependent upon medical foods for their optimum health and survival. Incidence of these diseases are generally low, ranging from 1 per 300,000 live births for maple syrup urine disease to 1 per 10-25,000 with phenylketonuria. Incidence and cost of treatment for a 40 year life span is included. Children and adults with these diseases cannot metabolize one or more amino acids, the building blocks of proteins. Untreated, these inherited diseases can lead to untimely death, dementia, and institutionalization costing society in excess of $3,000,000 per affected over a lifetime.

These medical formulas provide up to 70% of the required nutriture for affected individuals, without treatment serious consequences will ensue. The modified phenylalanine product cost, which are supplemental to PKU's medical dietary treatment are included, however they are pending under F.D.A. review process for consideration as a medical food. Costs are based on 40% markup of wholesale prices of commercially available formulas.

These numbers are only estimates and should be regarded as such. For further questions, please do not hesitate to contact me at (619) 587-9421.

Sincerely,

Holly Howard Wolf
President

SUMMARY OF SELECTED INBORN ERRORS OF METABOLISM

DISORDER	ANNUAL INCIDENCE
INBORN ERRORS OF AMINO ACID METABOLISM	
Glutaric aciduria, type I (glutaryl-CoA dehydrogenase)	135 live births
Glutaric aciduria, type II (electron transfer flavoprotein or electron transfer flavoprotein ubiquinone oxidoreductase)	Unknown (rare)
Homocystinuria, nonresponsive	27-81 live births
3-Hydroxy-3-methylglutaric aciduria (3-hydroxy-3-methylglutaryl-CoA lyase)	Unknown (rare)
Isovaleric acidemia (isovaleryl-CoA dehydrogenase)	Unknown (rare)
Maple syrup urine disease branched- chain ketoacid dehydrogenase complex)	14-41 live births
3-Methylcrotonyl-glycinuria (3-methylcrotonyl-CoA carboxylase)	Unknown (rare)
3-Methylglutaconic aciduria (3-methylglutaconyl-CoA hydratase)	Unknown (rare)
Methylmalonic acidemia (cobalamin reductase; adenosyltransferase)	Unknown (rare)
Methylmalonic aciduria (methylmalonyl-CoA mutase or mutase)	203 live births
Phenylketonuria (PKU) (phenylalanine hydroxylase)	162-405 live births

cont. pg 2

PKU because of tetrahydrobiopterin deficiency (guanosine triphosphate cyclo-hydrolase;6-pyruvoyl-tetrahydrobiopterin synthetase;dihydropteridine reductase)	16-41 live births
Propionic acidemia (propionyl-CoA Carboxylase)	Unknown (rare)
Tyrosinemia type I (fumarylacetoacetate hydrolyase)	203 live births
Tyrosinemia type II (tyrosine aminotransferase)	Unknown (rare)

INBORN ERRORS OF CAROBHYDRATE METABOLISM

Pyruvate dehydrogenase E1a or E1b	< 16 live births

INBORN ERRORS OF MINERAL AND VITAMIN METABOLISM

Hypercalcemia (Williams syndrome) idiopathic infantile hypercalcemia; carbonic anhydrase II deficiency	Unknown (rare)

INBORN ERRORS OF NITROGEN METABOLISM

N-Acetylglutamate synthetase deficiency	Unknown (rare)
Argininemia (arginase deficiency)	< 32 live births
Argininosuccinic aciduria (argininosuccinate lyase)	41-58 live births
Carbamyl phosphate synthetase deficiency	41-58 live births
Citrullinemia (argininosuccinate synthetase)	41-58 live births
Ornithine transcarbamylase deficiency	41-58 live births

Disease	Number of live births in U.S. with disease(a)	Number of individuals in U.S. with disease assuming 40 year life span	*Medical food treatment cost per person per year over a 40 year life span(b)	Medical food treatment cost in dollars per individual over 40 year life span	N: fo all dis
Phenylketonuria(PKU)	162-405	6480-16,200			
female	est.		$4500-5000	$180,000-200,000	$29,1
male			$5000-5625	$200,000-225,000	91,12
Glutaric Aciduria	135	5,400			
female			$4750-7500	$190,000-300,000	$25,65
male			$5625-8750	$225,000-350,000	47,250,
Maple Syrup Urine Disease	13-41	520-1640			
female			$3750-7500	$150,000-300,000	$1,950,
male			$4500-8750	$180,000-350,000	14,350,
Methylmalonic acidemia/ propionic acidemia	Unknown				
female			$3500-7500	$140,000-300,000	Unkno
male			$4250-8750	$170,000-350,000	
Homocystinuria/ Hypermethioninemia	Unknown				
female			$3500-7500	$140,000-300,000	Unkno
male			$4000-8750	$160,000-350,000	
					$56,760
					152,725
					($56.7
					$152.7

*Medical Foods- prescribed by a physician, these are commercially designed complete elemental ingredients specifically for the treatment of inborn errors of metabolism.

**Low phenylalanine dietary products -these modified products are supplemental to the medical dietary treatment and are recommended by a physician.

(a)Based upon census bureau estimates of total live
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LYNN SCHENK
49TH DISTRICT
CALIFORNIA

COMMITTEE ON ENERGY AND COMMERCE
TELECOMMUNICATIONS AND FINANCE
TRANSPORTATION AND HAZARDOUS MATERIALS

COMMITTEE ON MERCHANT MARINE AND FISHERIES
MERCHANT MARINE
COAST GUARD AND NAVIGATION
OCEANOGRAPHY, THE GULF OF MEXICO, AND THE OUTER CONTINENTAL SHELF

Congress of the United States
House of Representatives
Washington, D.C. 20515

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FAX COVER SHEET

TO: Jennifer Klein

WITH: _____

TIME: _____ DATE: _____

FAX NUMBER: 456 2878

TOTAL PAGES(INLUDING COVER): 6

FROM THE DESK OF:

___Congresswoman Lynn Schenk	___Suzanne Hassett
___Kerry Abelson	X Alan Keller
___William Bold	___Rochelle Roseman
___Fran Callanan	___George Wilson
___Jonathan Correa	___Glynnis Vaughan
___Joel Ginsburg	___

COMMENTS: _____

_____

_____

_____

public/jonathan/fax

If you have any questions/problems concerning this transmission, please contact the Washington, D.C. Office at (202) 225-2040.

FAX # for Washington, D.C. Office: (202) 225-2042
FAX # for District Office: (619) 291-8956

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cont. pg 2

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Citrullinemia (argininosuccinate synthetase)	41-58 live births
Ornithine transcarbamylase deficiency	41-58 live births

Disease	Number of live births in U.S. with disease(a)	Number of individuals in U.S. with disease assuming 40 year life span	*Medical food treatment cost per person per year over a 40 year life span(b)	Medical food treatment cost in dollars per individual over 40 year life span	National annual medical food treatment cost for all individuals with disease	Additional cost of modified low phenylalanine dietary products per year per person
Phenylketonuria(PKU)	162-405	6480-16,200				
female	est.		$4500-5000	$180,000-200,000	$29,160,000-	$2700
male			$5000-5625	$200,000-225,000	91,125,000	
Glutaric Aciduria	135	5,400				
female			$4750-7500	$190,000-300,000	$25,650,000-	
male			$5625-8750	$225,000-350,000	47,250,000	
Maple Syrup Urine Disease	13-41	520-1640				
female			$3750-7500	$150,000-300,000	$1,950,000-	
male			$4500-8750	$180,000-350,000	14,350,000	
Methylmalonic acidemia/ propionic acidemia	Unknown					
female			$3500-7500	$140,000-300,000	Unknown	
male			$4250-8750	$170,000-350,000		
Homocystinuria/ Hypermethioninemia	Unknown					
female			$3500-7500	$140,000-300,000	Unknown	
male			$4000-8750	$160,000-350,000		
					$56,760,000- 152,725,000 ($56.7 million- $152.7 million)	

*Medical Foods- prescribed by a physician, these are commercially designed complete elemental ingredients specifically for the treatment of inborn errors of metabolism.

**Low phenylalanine dietary products -these modified products are supplemental to the medical dietary treatment and are recommended by a physician.

(a)Based upon census bureau estimates of total live births for 1993 and "Summary of Selected Inborn Errors of Metabolism" from *A Practioner's Guide to Selected Inborn Errors of Metabolism*, 1992 Ross Laboratories
1993 total live births were estimated at 2,700,000 for the eight months through August, 1993. This estimate is extrapolated to estimate total 1993 live births at 4,050,000

(b) Cost estimates extrapolated from Scientific Hospital Supplies, Inc. cost comparison report.

Continuation of chart

Disease	Total annual cost of **low phenylalanine dietary products for all U.S. individuals with disease	Total annual medical food treatment and low phenylalanine dietary product cost over 40 year life span
PKU female male	$17,496,000- $43,740,000	$46,656,000- 134,865,000
Glutaric Aciduria female male		
Maple Syrup Urine Disease female male		
Methylmalonic acidemia/ propionic acidemia female male		
Homocystinuria Hypermethioninemia female male		
		$74,256,000- 196,465,000 ($74 million - $196 million)

Medical Foods and Insurance Coverage

- The primary inherited metabolic disorders are:

  - PKU - 1 in 15,000
  - Galactosemia - 1 in 20,000
  - Maple Syrup Urine Disease - 1 in
  - Homocystinuria - 1 in
  - Biotinidase Deficiency -

- PKU treatment programs are now recommending keeping children/adults with inherited metabolic disorders be kept on supplemental diets for LIFE.

- Medical foods or formulas are usually used to provide supplemental calories and nutrients to make up for the often very restrictive diets that these patients must follow in order to ensure that children grow and thrive.

- 1988 survey of state treatment programs for PKU and selected other inherited metabolic diseases showed:

  - family health insurance has grown as a source of coverage for families from 37% in 1982 to 56% in 1988;

  - discussions with treatment program staff in California reveal that they are usually able to get insurance coverage for formulas;

  - State health departments' children with special health care needs programs (Title V programs) also cover formula for lower income children, or when insurance denies.

- At least 5 States have mandated coverage for PKU: AK, MA, MT, MN, WA. All of these include coverage of the medical food in their mandate.

- A recent study by Scientific Hospital Supplies entitled *"Comprehensive Pricing Analysis for Metabolic Disorders Formulas"* showed that formulas for PKU cost about:

  - $1,300 per year for an infant
  - between $2,800 and $3,800 per year for grade school through teen years
  - about $3,500 for children over 19.

  Other formulas tend to cost more but are less prevalent.

FORMULAS FOR TREATMENT OF INHERITED METABOLIC DISEASES

Formulas used in the treatment of inherited metabolic diseases are very expensive, and a large burden for families to bear alone. Table 2 (page 6) shows that state health departments are the sole source or a major source of formula funding for 52 of the 112 programs (46%, compared to 55% of programs in the 1982 survey). Family health insurance has become a more significant source of funding over the past 6 years, however. Fifty-six percent of programs now utilize family health insurance as one source of funding, compared to 37% in 1982. It was listed as the major source of support by 17% of the programs compared to 10% in 1982.

Programs are also finding the need to utilize more different sources of support for formula funding. Twenty-one percent of programs used only one source in this survey (Figure 2), compared to 36% in 1982 .

FIGURE 2

PERCENT OF PROGRAMS UTILIZING ONE, OR MULTIPLE SOURCES OF FORMULA FUNDING

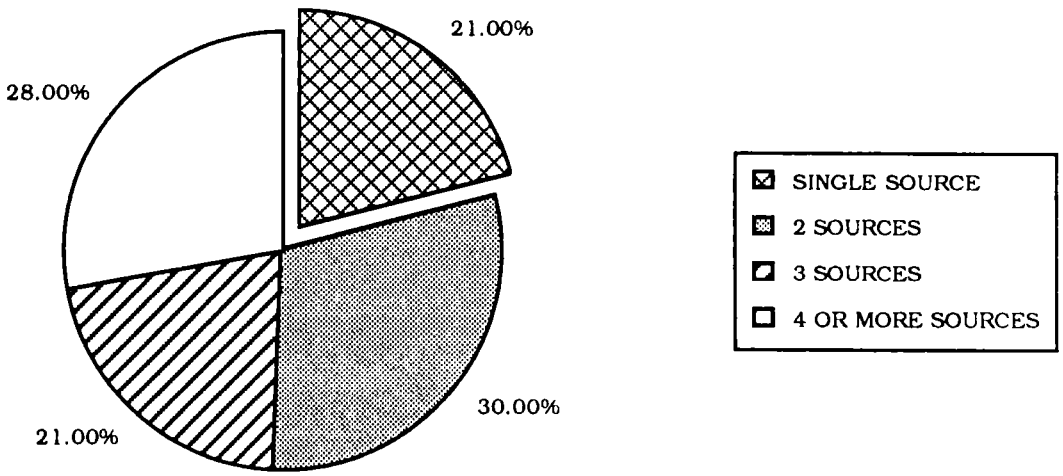

TABLE 2
SOURCES OF FUNDING FOR FORMULAS USED IN TREATMENT OF INHERITED METABOLIC DISEASES

SOURCE	Number of programs	Sole source	Major, not sole source
State Health Department	69	19*	33
Family Health Insurance	62	0	20
WIC Program	51	0	4
Crippled Childrens' Program	47	2	13
Families	40	1	2
MediCal/Medicaid	11	0	0
Military	5	0	0
Champus	4	0	0
Genetically Handicapped Persons Prog.	3	0	1
Title XIX	1	0	0
Childrens' Medical Services	1	0	0
Child Welfare	1	0	0

* Programs located in 11 states.

PKU DIET POLICIES

Program policies regarding PKU diet maintenance, as reported by the 105 clinics treating PKU, are described in Table 4. The majority of programs now recommend indefinite continuation of diet; most programs individualize their approach, however, considering the option of liberalizing or discontinuing diet in special circumstances.

In this survey 61% of programs reported that their policy is to recommend indefinite continuation of diet for males; 77% reported this as their recommendation for females. In the 1978 survey, 23% of programs recommended indefinite continuation of diet for males and 42% had this policy for females. A greater number of programs recommend indefinite continuation of diet for females than for males, reflecting concern over the need for females with PKU to maintain strict diet during pregnancy.

In the past 5 years, 29 programs reported that their policy for diet maintenance has changed, all becoming more conservative. Nineteen programs reported increasing the age at which either diet discontinuation or diet liberalization is allowed. Eleven programs reported encouraging more strict control of blood phenylalanine levels. One program reported more regular follow-up of males with PKU. Four programs reported that they were considering changing their diet maintenance policy to a more conservative one.

Of those programs recommending indefinite continuation of diet, 9 sanctioned higher blood phenylalanine levels for "older" children (desired upper limit ranging from 10 to 18 mg/dl). Two programs allowing the option of discontinuing diet at a specified age also allowed higher blood phenylalanine levels in "older" children (desired upper limit 12 or 15 mg/dl).

Definitions of "strict" diet were variable (see Table 5), as were definitions of "liberal" diet (Table 6), the age considered for diet liberalization (Table 7), and the age diet discontinuation is considered by programs allowing it (Table 8).

The mean age considered for diet "liberalization" for this survey was 10.4 years for males and 8.9 years for females, with a combined mean of 9.8 years. This compares to a combined male-female mean of 7.8 years in the 1982 survey.

The mean age considered for diet discontinuation for those clinics allowing it was 13.4 years for males and 12.4 years for females, with a combined mean of 12.7 years. This compares to a combined male-female mean of 7.5 years in the 1982 survey.

Overall policies for maintenance of the PKU diet have become increasingly conservative in the decade since the first survey in 1978 was done, when nearly one-half of the programs reported recommending diet discontinuation at ages ranging from 3 to 10 years.

TABLE 4
PKU DIET POLICIES

DIET POLICY	NUMBER OF PROGRAMS For Males	For Females
Strict diet indefinitely	66	82
Strict diet until a specified age, then liberalized indefinitely	16	9
Strict diet until a specified age, then allow option of discontinuing	15	6
No policy	6	6
Policy unknown	2	2
TOTAL*	105	105

* Seven of the 112 identified programs treat only inherited metabolic diseases other than PKU.

Amendment

Amend Section 2001 (b)(5)(B), to read as follows (added language is underlined):

"(B) Not later than January 1, 1996, (and periodically thereafter), the Secretary shall publish a list of the drugs and indications for such drugs, that are covered home infusion drugs, with respect to which home infusion drug therapy may be provided under this title. The Secretary shall also establish by regulation not later than January 1, 1996 the circumstances and conditions where the provisions of oral medical foods (as defined in 21 U.S.C. 360 ee(b)(3)) is medically appropriate and cost effective."