

# Genetic Services: The HMO Model Clinical & Financial

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Northern California Region

# The Problem

- Clinical Genetics: “The health care of a few”
- Genomic Medicine: “The health care of all”

# Clinical Genetics: Current Problems

- Keeping up with the new genetic technologies
- The genetic evaluation is labor intensive
- Current barriers: financial, linguistic, cultural
- Limited number of genetic professionals

# Primary Care Provider and Genetics

## The Problem

- Time needed for genetic evaluation
- Limited training in clinical genetics
  - Genetic testing
  - Risk assessment
  - Non-directive counseling
  - Psychological implications

# Kaiser Permanente Northern California

- 3.1 million members
- 4,000 physicians
- 34,000 deliveries

# Clinical Genetic Service

- Comprehensive
  - new technologies
  - integrate new service
- Consistent
- Caring
- Cost efficient

# Kaiser Permanente Genetics Northern California

- 5 genetic centers (strategically located)
- 11 medical geneticists (clinical, metabolic, cytogenetic, molecular)
- 4 PhD laboratory directors (cytogenetic, molecular)
- 53 genetic counselors (board-certified or eligible)
- 17 nurses/3 metabolic nutritionists
- Support: computer specialists, administrative

# Genetics Programs - Overview

- Prenatal - Clinical/Screening
- Neonatal - Clinical/Screening
- Ethnic Screening
- Multispecialty Clinics (for common genetic disorders)
- Adult Genetic Services (cancer/clinical/screening)
- Genetic Laboratories
- Genetic Education - Providers/Members



# Prenatal Programs

- Genetic/ethnic questionnaire
- Video presentation of genetic services
- X-AFP (80% accept)
- Advanced maternal age - amniocentesis/CVS
- Ultrasound - level 1 anatomical screen
- Cystic Fibrosis screening
- Hemoglobinopathy screening
- Fetal pathology
- Genetic counseling (when indicated)

# Ethnic Screening

- Hemoglobinopathy
- Thalassemia -  $\alpha$  and  $\beta$
- Tay-Sachs/Canavan
- Cystic Fibrosis

# Neonatal Programs

- Clinical evaluation - birth defects/dysmorphic
- Neonatal screening - with “escaped baby”  
follow-up:
  - ◆ PKU
  - ◆ Galactosemia
  - ◆ Thyroid
  - ◆ Hemoglobinopathy

# Screening/Tracking Programs

- 2003: 45,443 Cases
  - (Prenatal)
  - (Neonatal)
  - (Breast Cancer)
  - (Mammography)

# Clinical Genetics

- Clinical Evaluation - Geneticist
- Genetic Counseling
- 2003: 20,341 Cases

# Genetic Counselors

- Provide genetic services
- Assist Clinical Geneticist
  - case preparation
- Case management
- Psychosocial support of families
- Genetic education

# Fetal Pathology

- 2003: 1,957 Cases

# Genetic Multispecialty Clinics

- Spina Bifida
- Craniofacial
- Metabolic
- Pediatric Lipid
- Neurogenetics
- Skeletal Dysplasia
- Neurofibromatosis



# Genetic Multispecialty Clinics

2003: 2,017 patients followed/case-managed

# Cancer Genetics

- Cancer risk counseling - breast/colon
- Gene testing when indicated
- Breast cancer tracking system
- Mammography tracking system

# Cancer Tracking - 2003

- Breast cancer - 3,036
- Mammograms (abnormal) - 23,667

# Regional Genetic Laboratories 2003

- Cytogenetics: 11,696 studies
- Molecular: 24,790 studies
  - Northern California - 18,485 studies
  - Southern California - 6,305 studies
- Metabolic: 2,603 studies  
(statewide KP lab in Southern California)

# Genetic Education/Research

- *The Screen*: On line publication for providers
- Genetic Web Page: for providers and members (<http://www.dor.kaiser.org/genetics>)
- Accumulated genetics database for research

# New Genetic Services/Testing

- Genetics Group Decision
- New Technology Committee
- KP Budget Process

# Budget Process

## Regional KP Committee

- Establish cost basis for new service
- Monitor productivity and actual cost
- Review/approve annual budget

# 2004 Budget

- \$ 24,190,000
  - includes \$ 3.1 M for X-AFP fees
- 2004 - \$0.65/member/month
- 2001 - \$0.52/member/month



# 2003

- Total FTE: 207
- MD FTE: 13
- Cases: 103,080

## Cases/FTE

## Cost/Case

- Clinical Genetics: 256
- Specialty Clinics: 77
- Fetal Pathology: 654
- Cytogenetics: 280
- Molecular: 698

- \$ 384
- \$ 1,228
- \$ 270
- \$ 362
- \$ 121

# Genetic Technology Assessment: 2-5 years

## Laboratory Needs

- ↑ Gene testing (diagnostics)
- ↑ Prenatal genetic screening
- ↑ Neonatal genetic screening
- ↑ Carrier testing
- ↑ Ethnic screening
- ↑ Predictive testing:
  - Presymptomatic and Predisposition

# Genetic Technology Assessment: 2-5 year Personnel Needs

- ↑ Medical Geneticists
- ↑ Genetic Counselors
- ↑ Genetic services by Primary Care Physician
- ↑ Genetic education for Primary Care Physicians
- ↑ Genetic education for all Residents
- Use of Internet to make genetic services efficient

# Genetic Technology Assessment: 5 - 10 Years

- Comprehensive genetic services
- Genetic practice guidelines
- Preimplantation genetic testing
- “Chip Technology” for genetic testing
- “SNP Map” testing for common disorders
- Pharmacogenomics - “Tailor-made drugs”
- Treatment: Stem cells, gene therapy, proteomics

# The Solution

- A more efficient clinical genetics infrastructure
- Increase Primary Care genetic services
  - Genetic Counselor within Primary Care Department
- Incorporate the internet into genetic services:
  - Patient triage
  - Collection of medical history information
  - Pedigree construction and family history
  - Patient and provider education