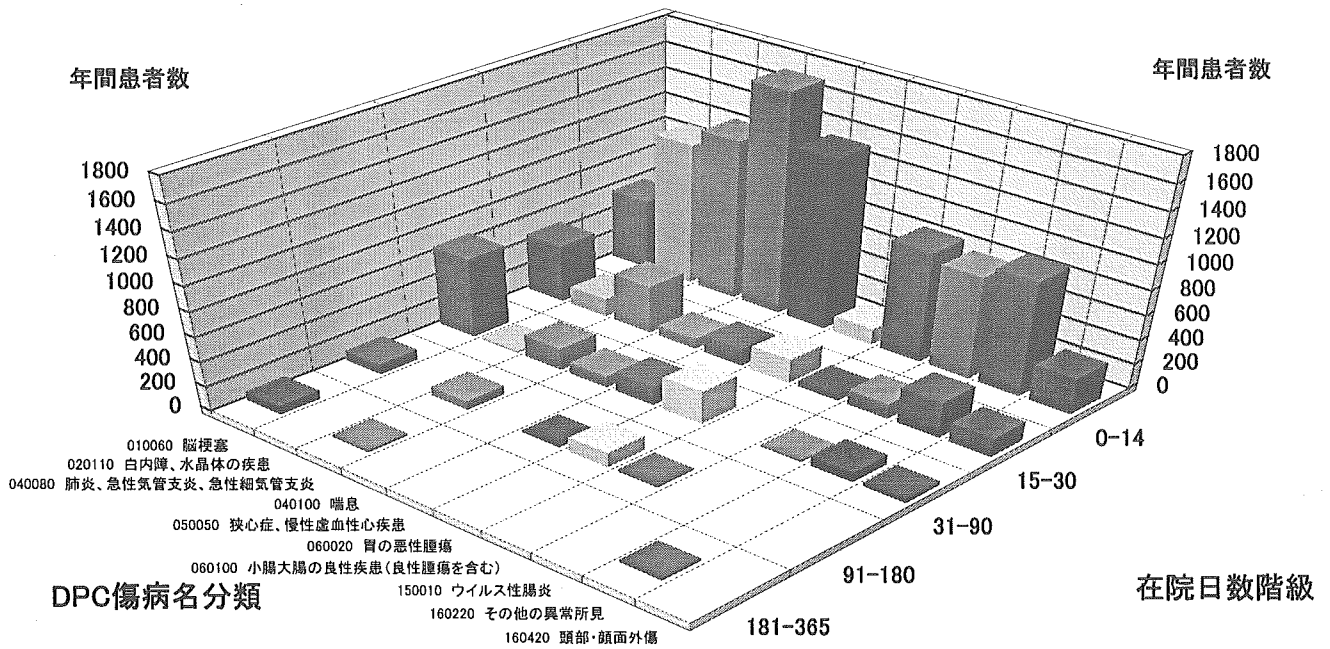
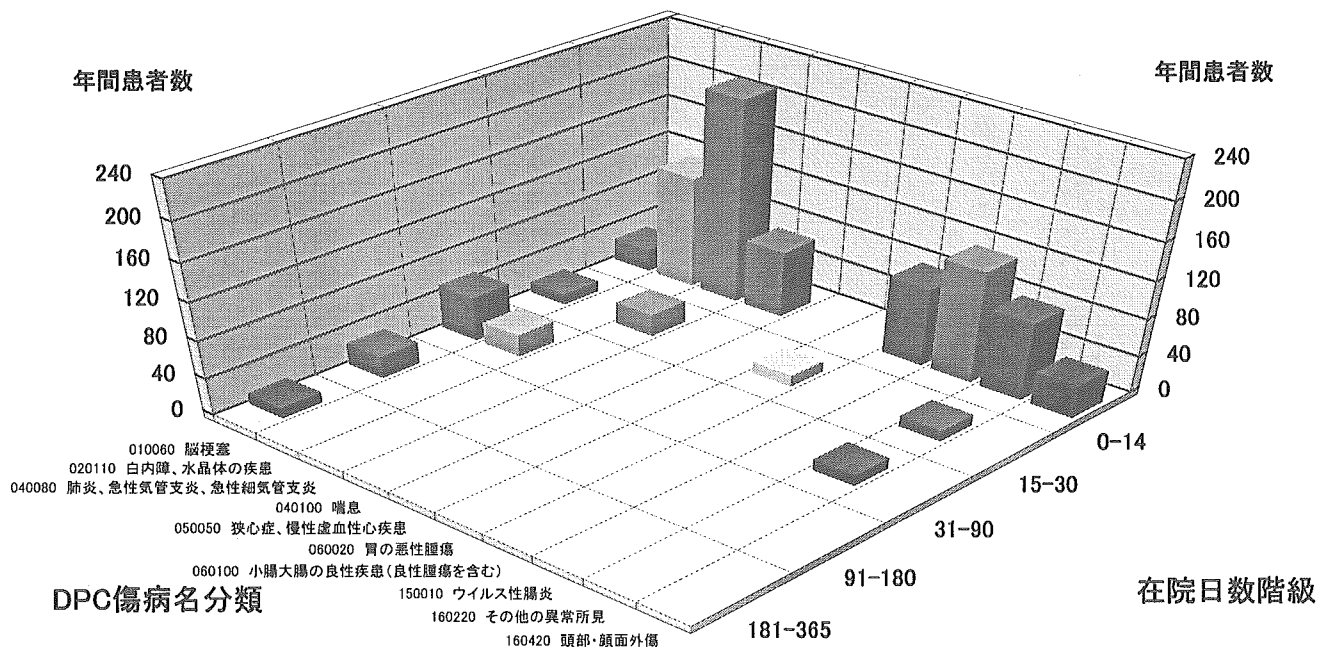


参考資料4 患者調査データの地域医療評価への応用 (傷病構造の推計)

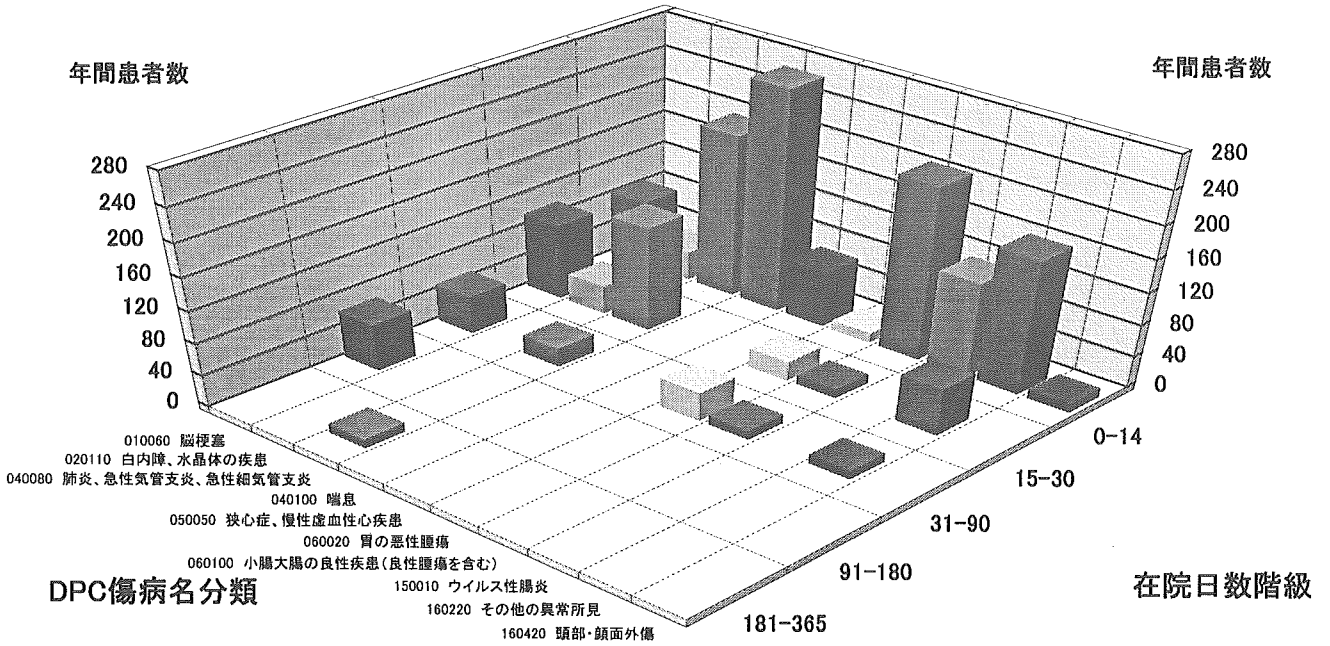
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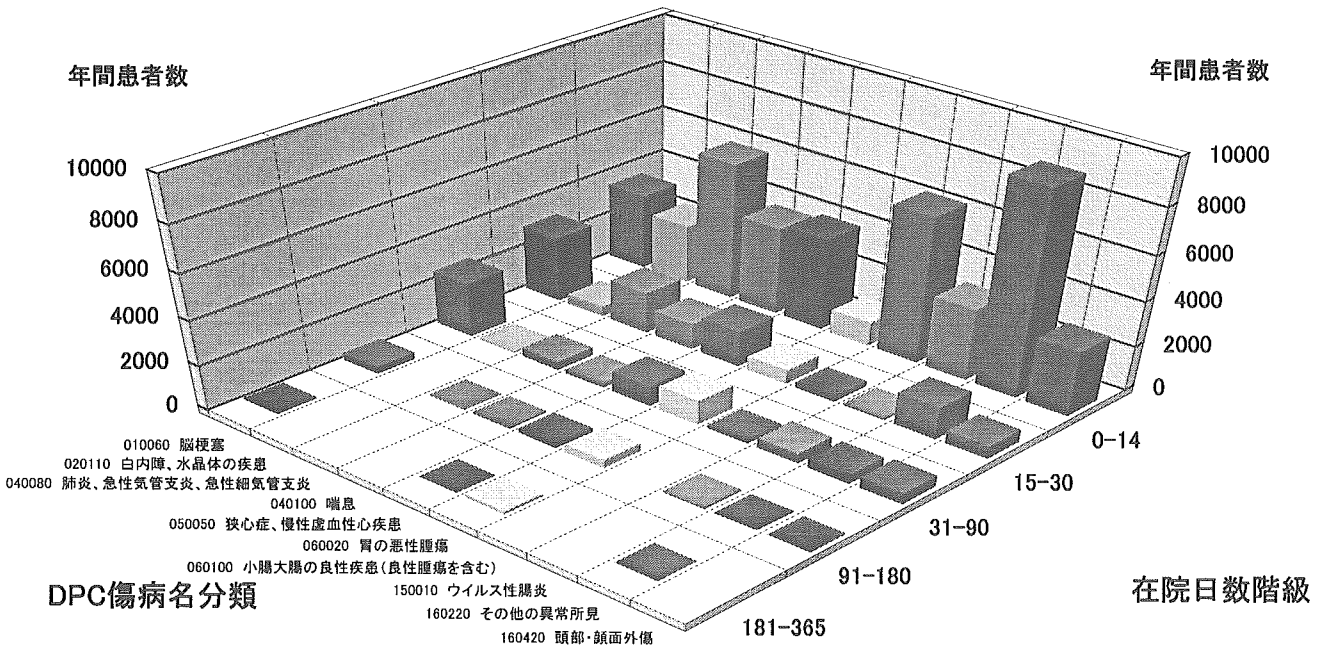
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二次医療圏 103 北渡島檜山

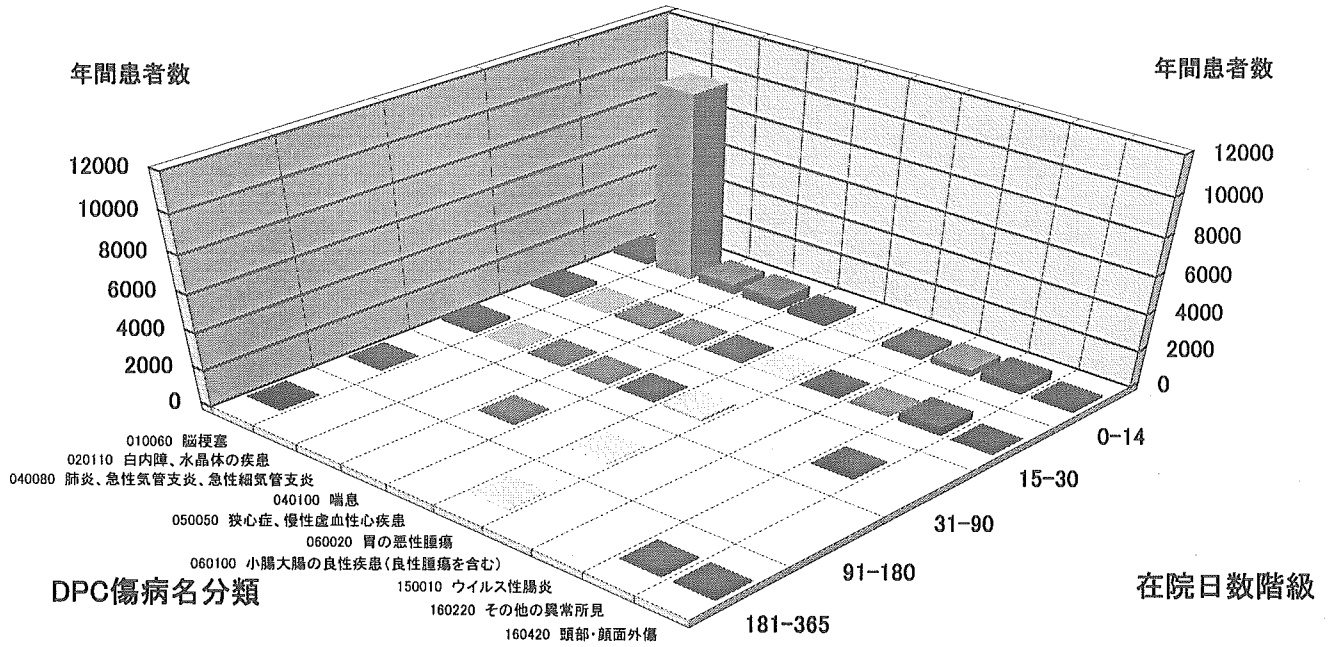


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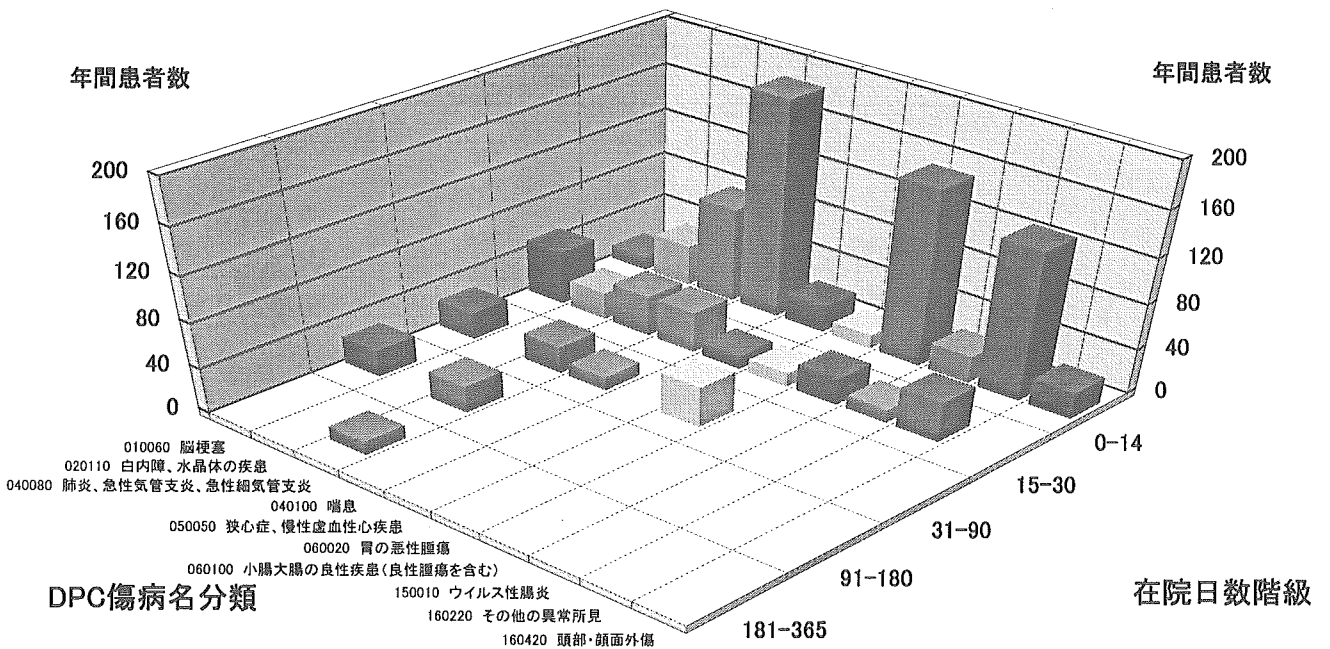




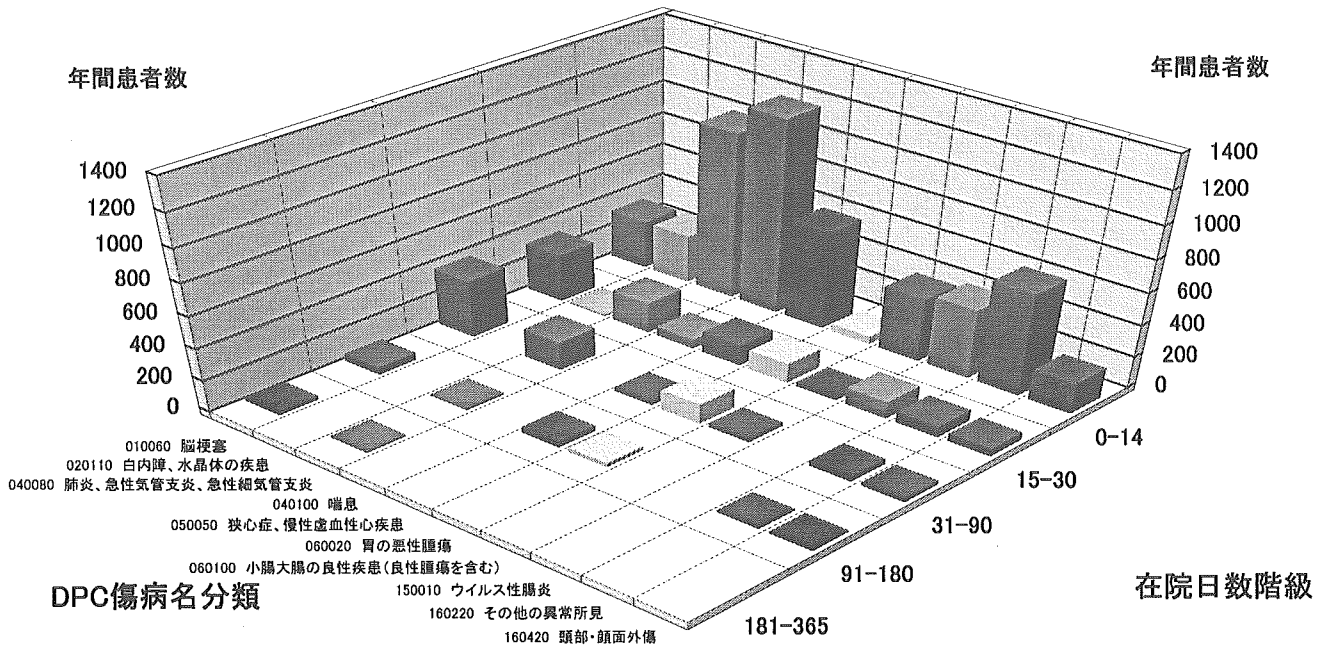
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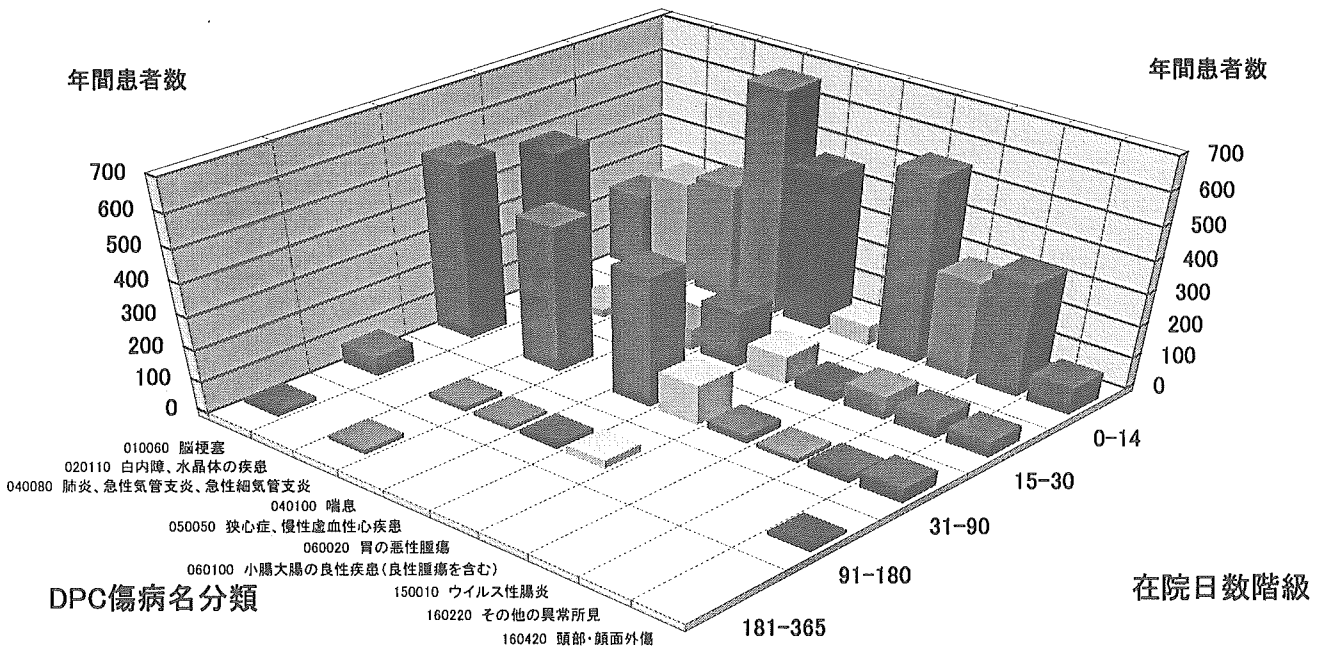
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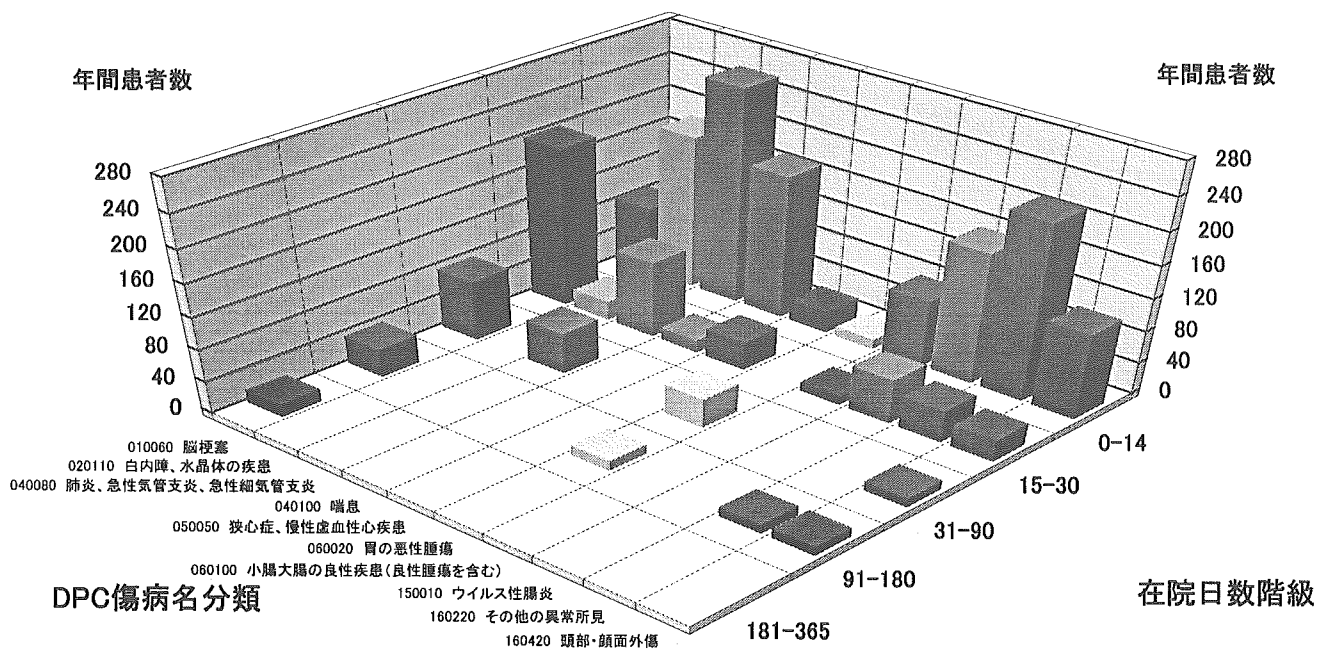
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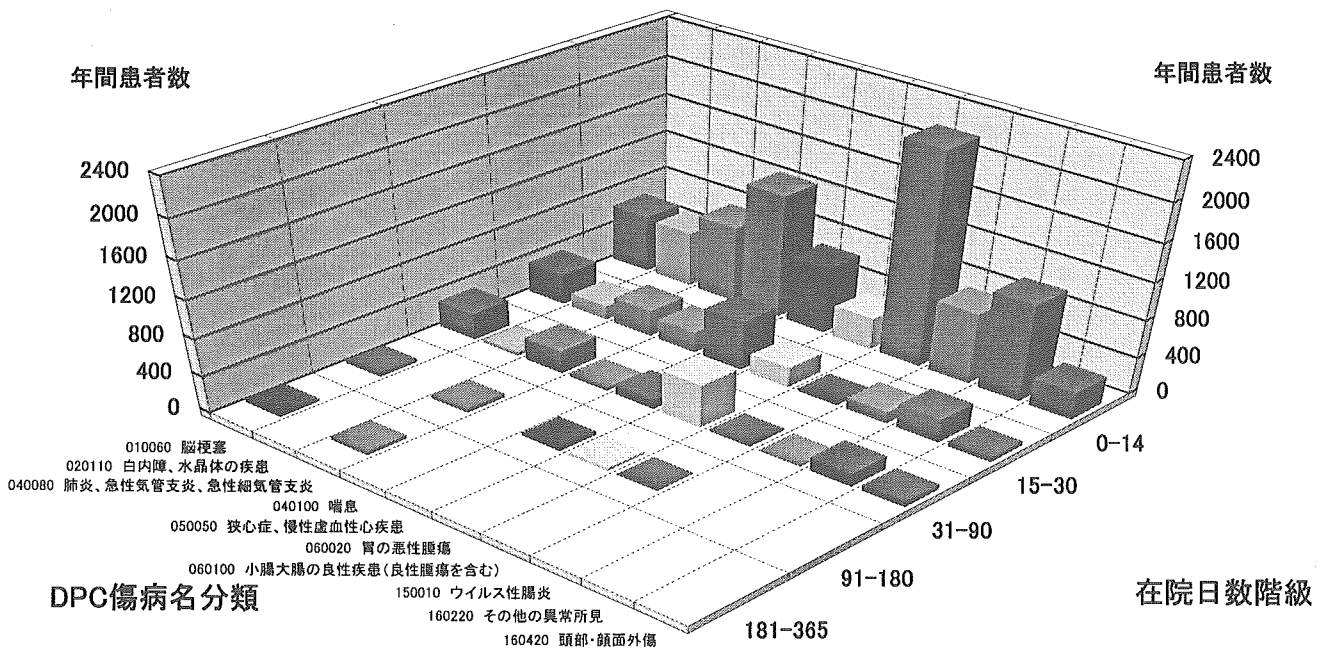
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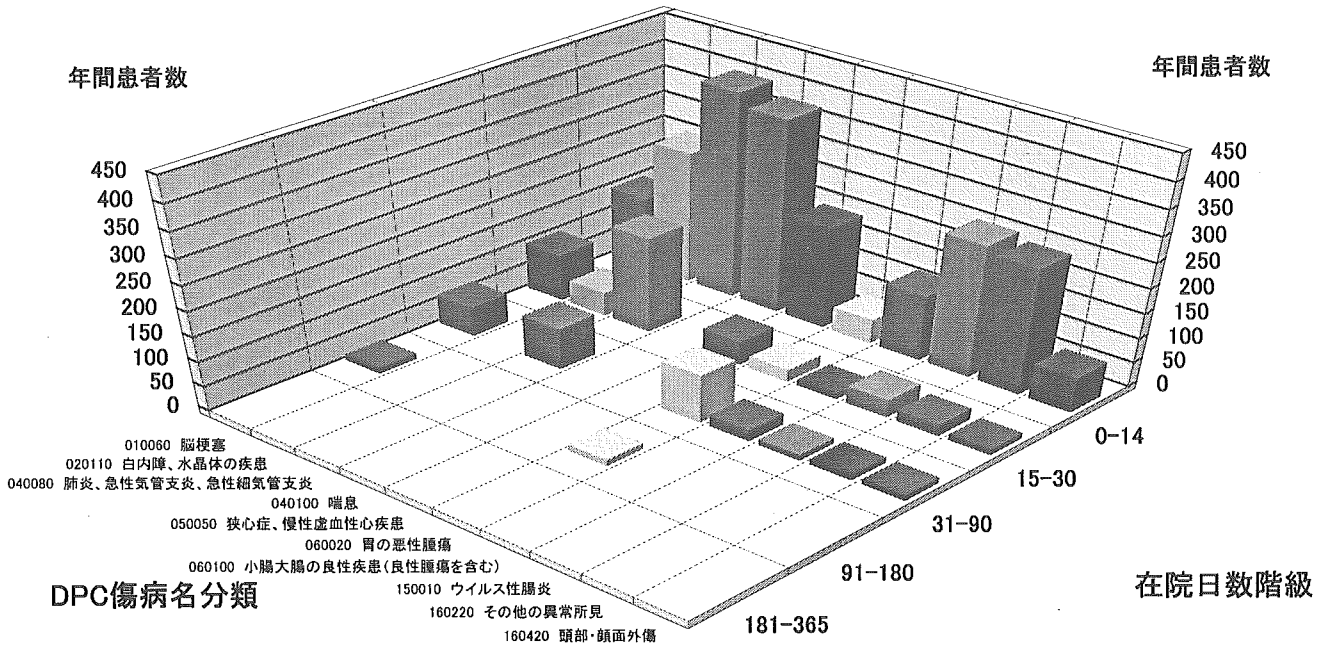
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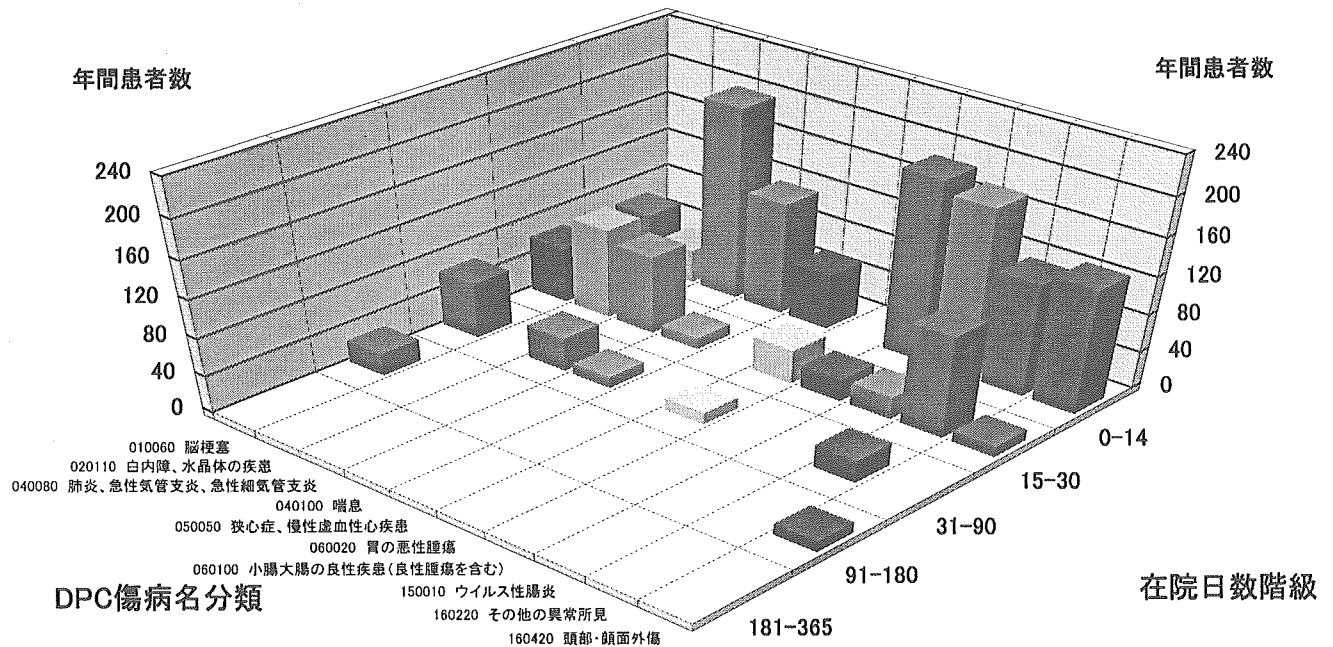
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二次医療圏 113 上川北部

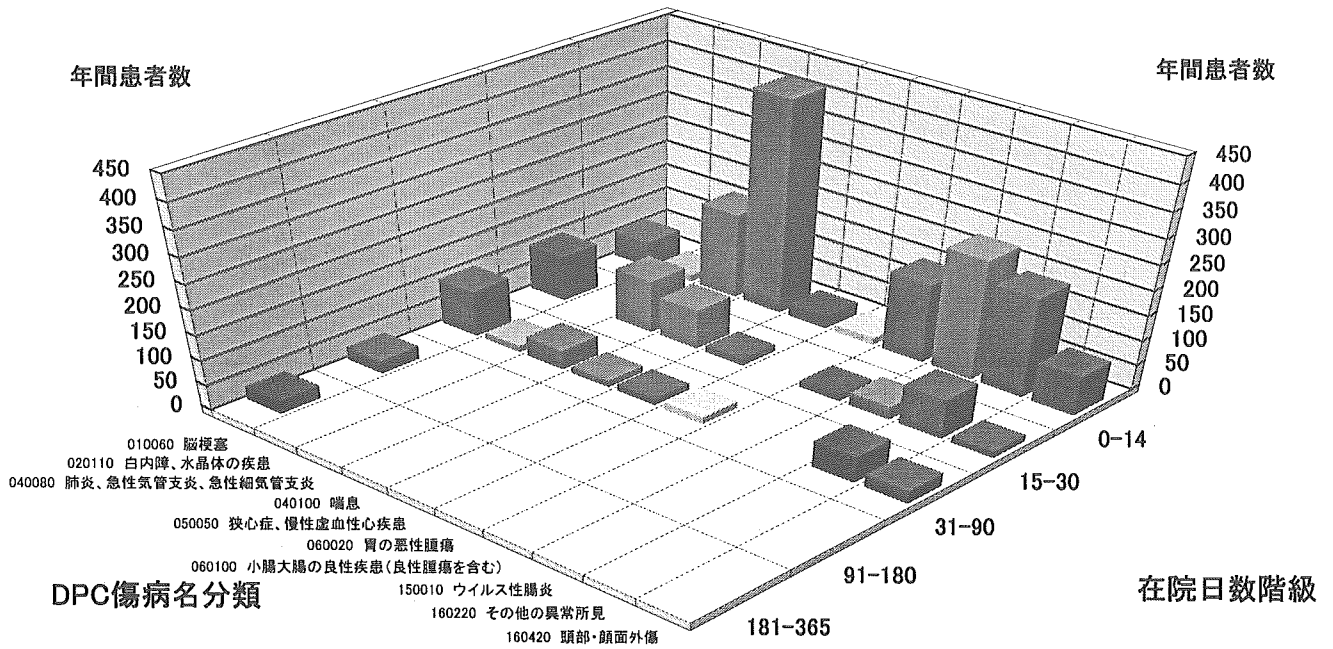


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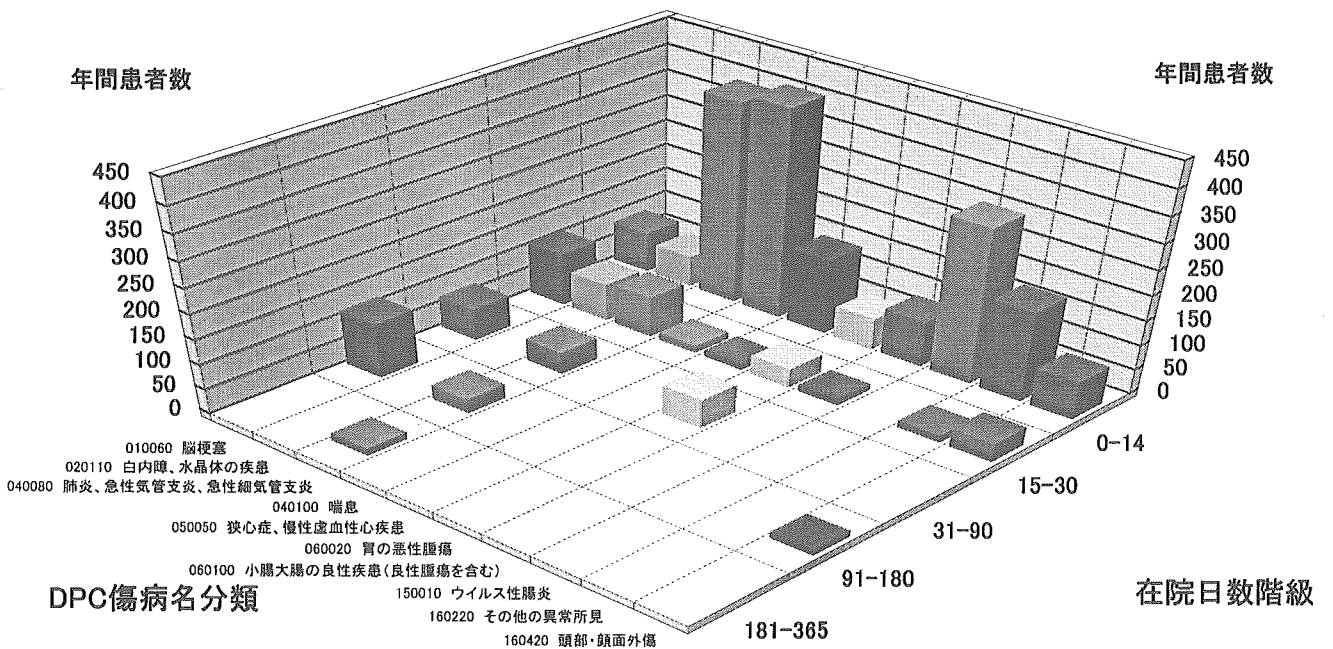




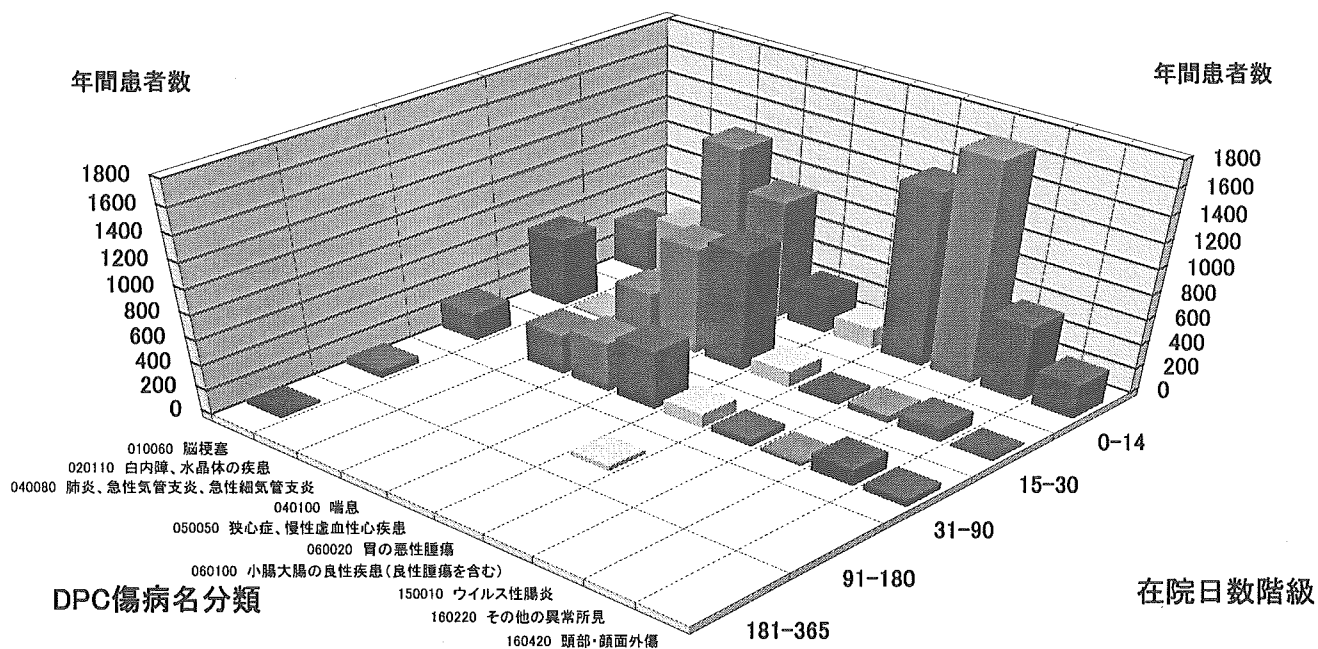
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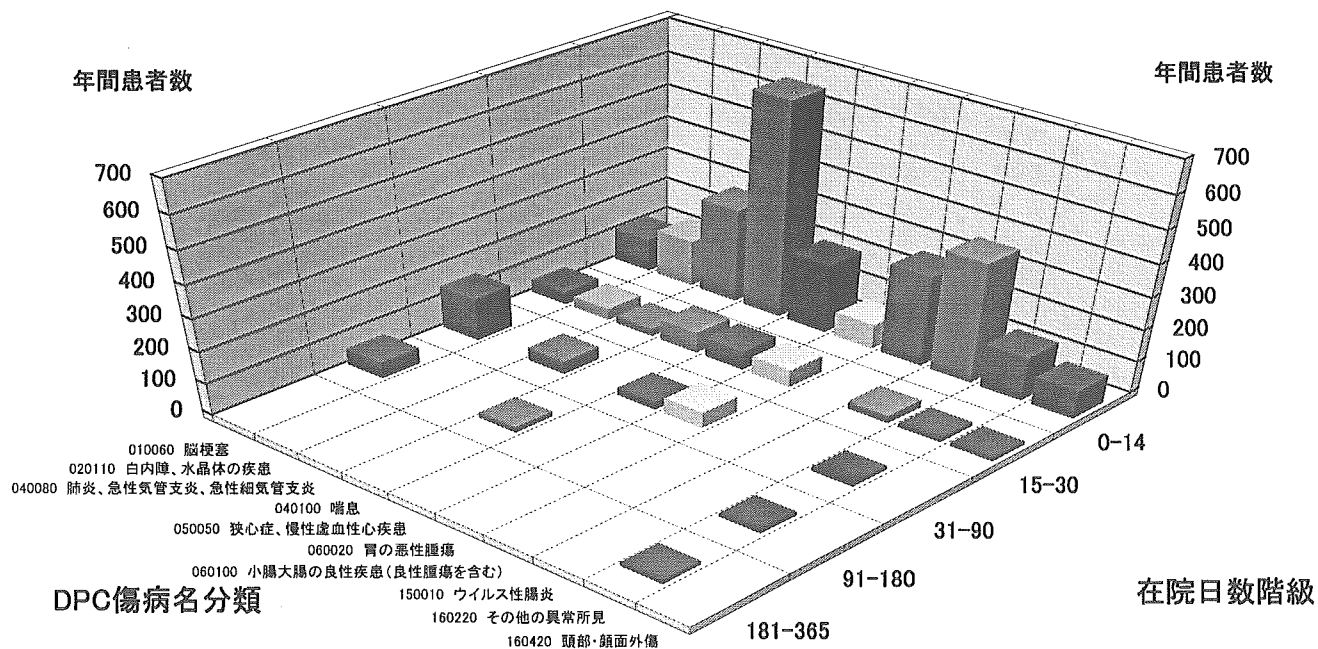
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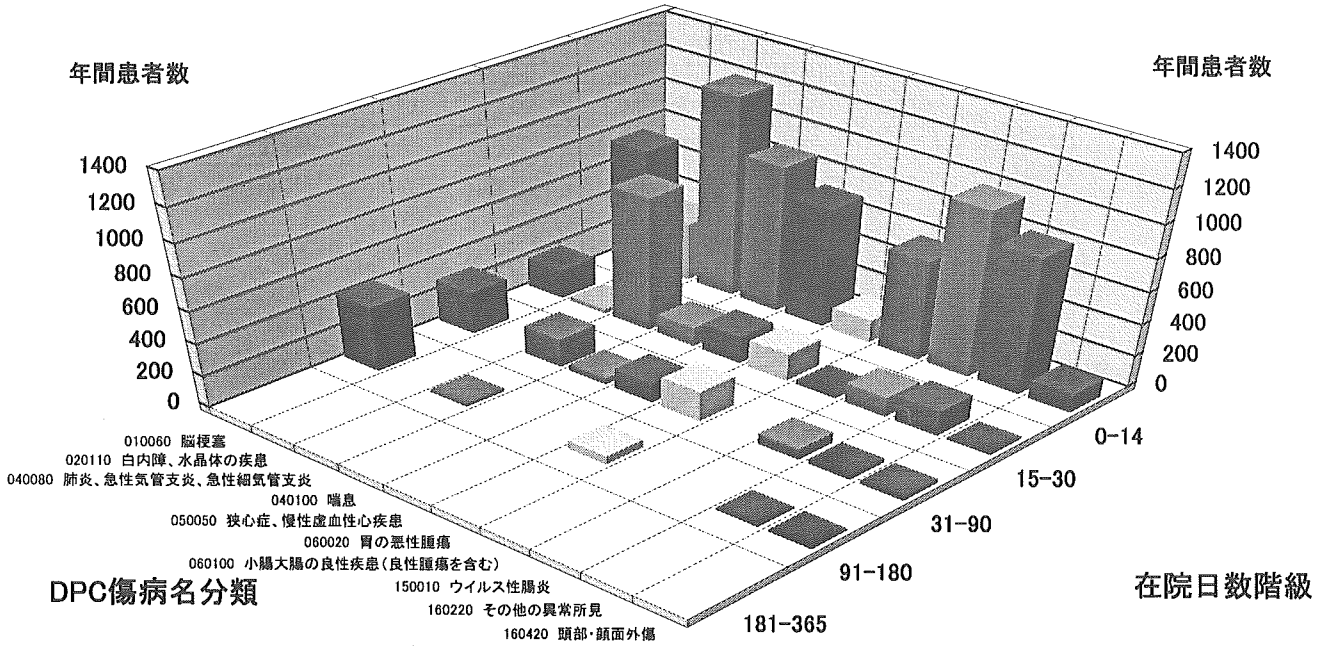
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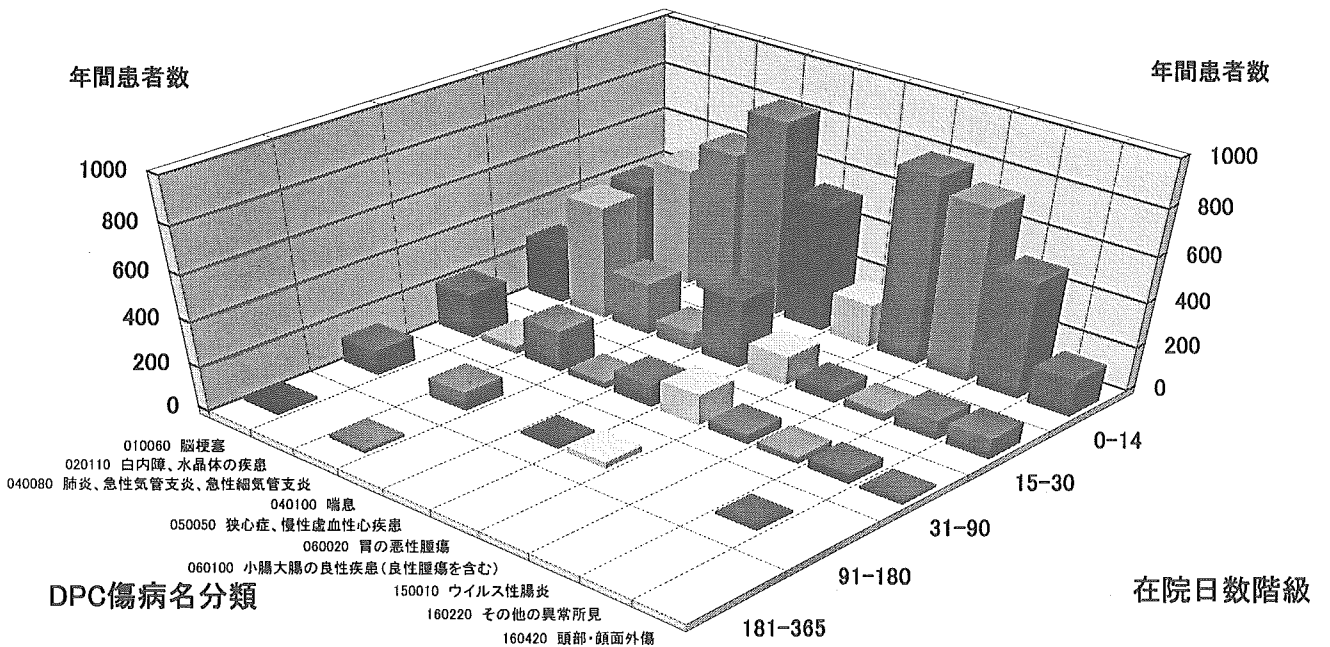
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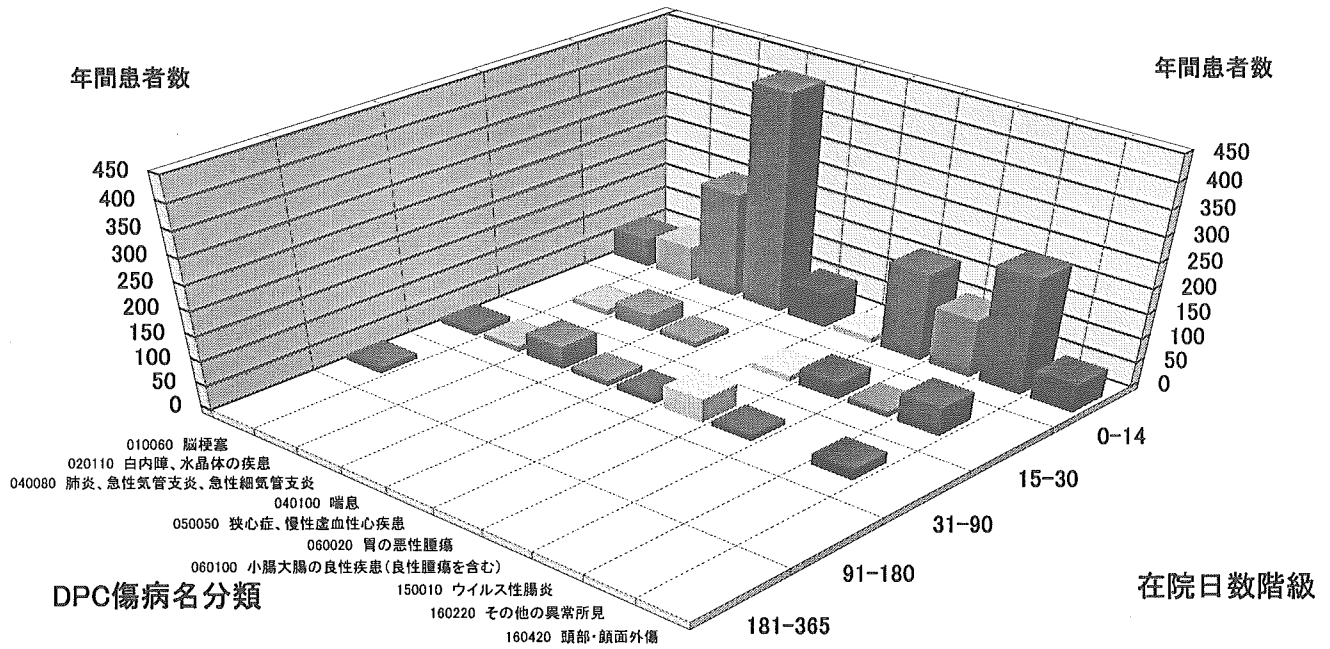
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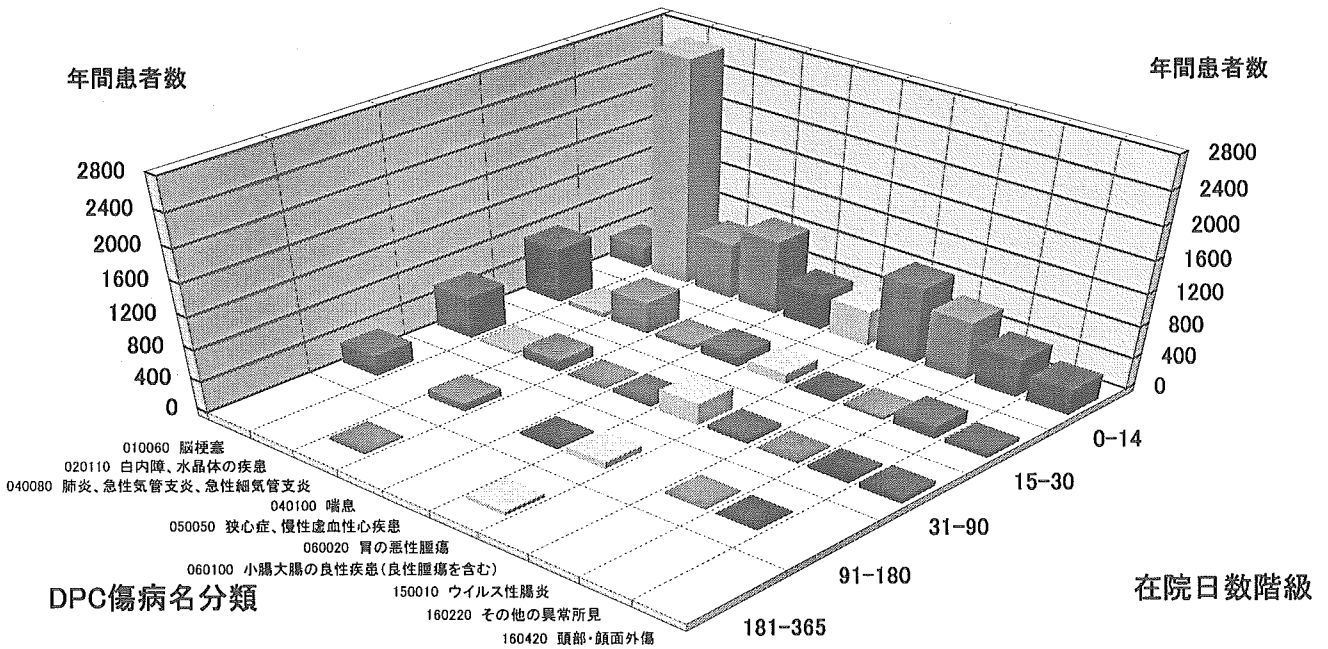
二次医療圏 120 釧路



二次医療圏 121 根室



二次医療圏 201 津軽地域



参考資料 5 患者調査データの地域医療評価への応用 (患者受療圏の分析)

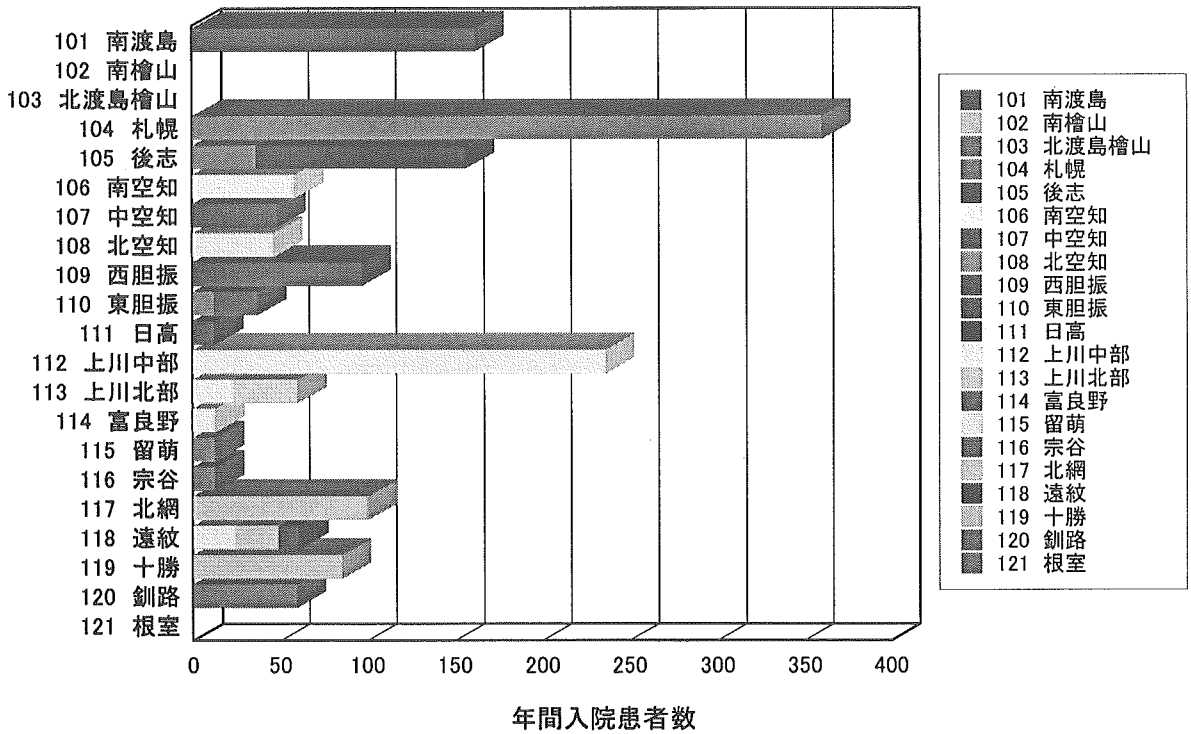
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01 神経系疾患

有

患者住所・入院先病院二次医療圏別入院患者数

患者住所二次医療圏



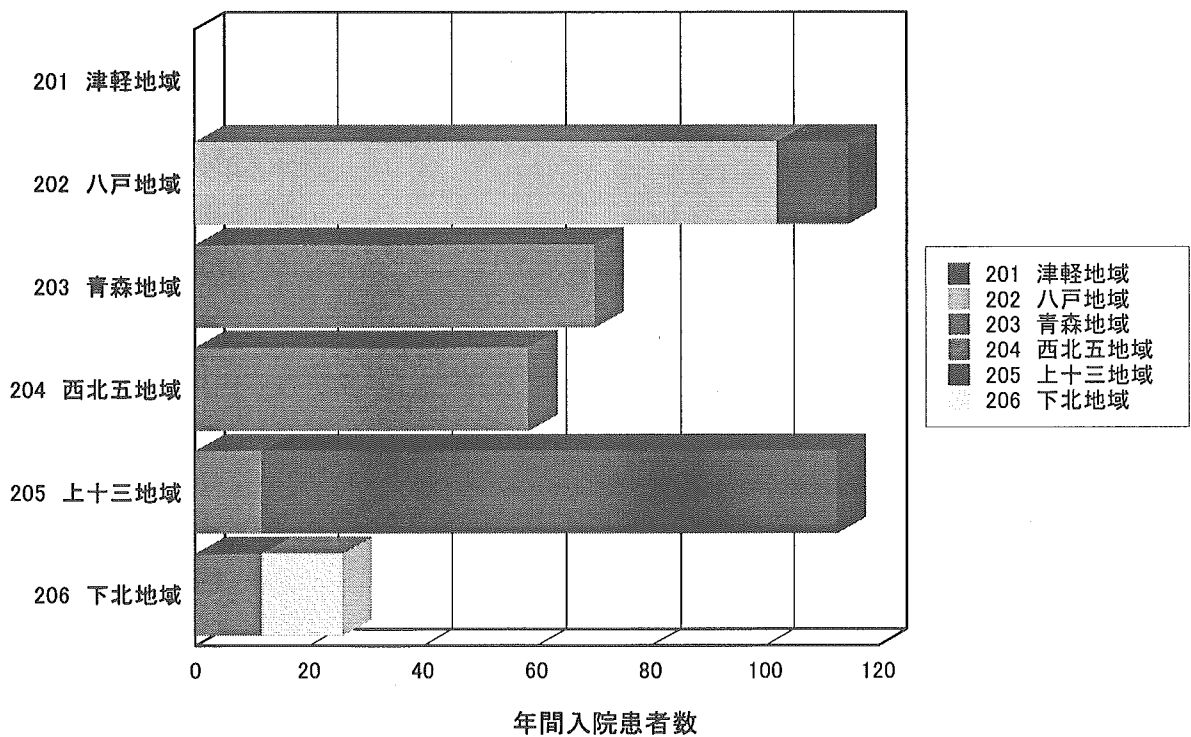
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01 神経系疾患

有

患者住所・入院先病院二次医療圏別入院患者数

患者住所二次医療圏







*(Slides accompanying Video-including supplement with expanded tables/graphs)*

## Introduction to The Johns Hopkins ACG Case-Mix Adjustment System

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The Johns Hopkins School Of Public Health  
Baltimore, Maryland USA

## Goals of Presentation

- To discuss the concept of "risk-adjustment" particularly as it relates to capitation payment and physician profiling.
- To describe The Johns Hopkins ACG case-mix methodology.
- To present real-world examples of how ACG-based risk adjustment has been applied to physician profiling and capitation payment.

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## Why Risk Adjustment Is Necessary

- Not Everyone Has the Same Need for Health Care Resources

<u>% of Population</u>	<u>% of Health Care Dollars</u>
1%	30%
10%	72%
50%	97%

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## Population Risk Adjustment: A Working Definition

- The process by which the health status of a population is taken into consideration when setting capitation rates or evaluating patterns or outcomes of practice.
- Service case mix and severity are related concepts.

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## Some Applications of Risk Adjustment within Health Care Management and Financing

- Assessing Provider Efficiency
- Determining Capitation or Budgeted Payment
- Resource Planning
- Evaluating Access to Care
- Evaluating Outcomes of Care
- Quality Improvement/Monitoring

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## Overview of Johns Hopkins ACG System

- The goal of the ACG system is to provide a conceptually simple, statistically valid, and clinically relevant measure useful for predicting the need for health services.
- ACGs ("Adjusted Clinical Groups", previously "Ambulatory Care Groups") are based on the premise that a measure of illness burden can help explain variation in health care resource consumption.

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### Overview (continued)

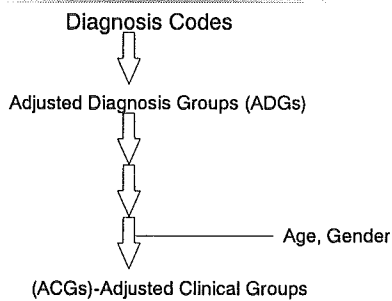
- A single ACG is assigned to a person based on their age, gender, and their constellation of diagnosis codes.
- ACGs are not a prior use measure per se, they are based only on diagnosis, not charges or procedures.

### Overview (continued)

- The grouping process has been computerized. The ACG "Grouper" software requires raw claims or encounter data only. (Or any other source of diagnoses codes).

Note: The complete system documentation is available at [www.hsr.jhsph.edu/acg/acg.htm](http://www.hsr.jhsph.edu/acg/acg.htm).

### Going from Diagnosis Codes to ACGs



### Criteria Used to Assign a Disease/Condition Into a Particular ADG

- Persistence/recurrence over time
- Likelihood of return visit
- Likelihood that specialty services will be required
- Expected need and cost of diagnostic or therapeutic procedures
- Likelihood of hospitalization
- Likelihood of disability or decreased life-expectancy

### Examples of the 32 ADGs

Adjusted Diagnostic Group*	Common Diagnosis
1 - Time Limited: Minor	Dermatitis
3 - Time Limited: Major	Acute Cholecystitis
9 - Likely to Recur: Progressive	Diabetic Ketoacidosis
10 - Chronic Medical: Stable	Essential Hypertension

\*Formerly "Ambulatory" Diagnostic Group

### Examples of the 32 ADGs (continued)

Adjusted Diagnostic Group	Common Diagnosis
11 - Chronic Medical: Unstable	Sickle Cell Anemia
25 - Psychosocial: Recurrent or Persistent Unstable	Schizophrenia
26 - Signs/Symptom: Minor	Headache
32 - Malignancy	Hodgkin's Disease

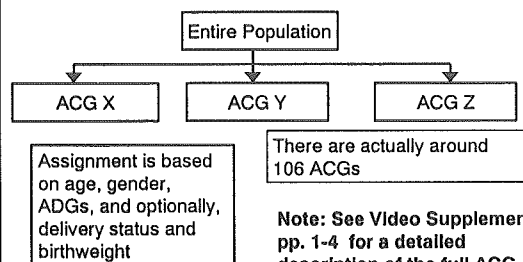
## Going from ADGs to ACGs

- During a single year, patient's diagnoses may fall into as many as 32 distinct ADGs. The potential number of permutations is huge. To be practical, a case-mix system must have a manageable number of mutually-exclusive categories.
- The methodology used to develop "end-group" ACGs was similar to the process used to develop DRGs.

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## Illustrative ACG Decision Tree



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## ACG Examples

### Adjusted Clinical Groups ACG Description

0200	Acute Minor, Age 2-5
0600	Likely to Recur, with Allergies
1722	Pregnancy:2-3 ADGs, No Major ADGs, Not Delivered
2800	Acute Major and Likely to Recur
4430	4-5 Other ADG Combinations, Age>44, 2+ Major ADGs
5322	Infants: 0-5 ADGs, 1+ Major ADGs, Low Birthweight

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## ACG Predictive Power Compared to Age/Gender

### RESOURCE MEASURE

	Ambulatory Charges	Total Charges
<b>Retrospective</b>		
Age/Gender	2- 5%	1- 4%
ACG	35- 65%	30- 45%
<b>Prospective</b>		
Age/Gender	2- 5%	1- 4%
ACG	10- 25%	8- 20%

All figures based on regression R squared with expenditure truncated at \$50,000.

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## Review: Distinguishing Characteristics of ACGs

- Each patient has one ACG category, but potentially has multiple ADG diagnostic groups.
- Unit of analysis is the patient and not visit or service.
- Based on diagnoses, not procedures.
- Person focused: Captures longitudinal, multi-episode dimension of health care.
- Requires only insurance claims or encounter data.

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## Update of ACG Applications

- Over 150 organizations in U.S. and abroad are now using Johns Hopkins ACGs.
- ACGs have become the defacto case-mix adjustment standard for the patient-level physician profiling.
- Increasingly, ACGs are being used by managed care organizations for payment purposes, including withhold return and capitation.

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### Update (continued)

- Minnesota business coalition is using ACGs to pay all contracting providers in Twin-Cities.
- State of Maryland Medicaid is paying ACG adjusted capitation payments to all 1115 waiver providers. (Several other states are likely to follow.)
- U.S. Medicare is assessing ACGs as an alternative to AAPCC demographic-based risk adjustment method.

### USING ACGs FOR CAPITATION PAYMENT

Note: See Video Supplement pp.5-12 for a complete description of ACG user categories.

### Resource Use In 1994-95 Based on 1994 ACGs: Average Per-Member-Per-Month Total Charges at an HMO

1994 ACG	Enrollees (n)	1994 Costs		1995 Costs	
		PMPM \$	ACG/ Avg.	PMPM \$	ACG/ Avg.
Entire population average (including non-users)	71,520	85.42	1.00	79.73	1.00
<b>Selected ACG Categories</b>					
300 Acute Minor, Age 6+	5,202	7.93	0.09	33.64	0.42
1722 Pregnancy: 2-3 ADGs no maj ADGs, not delivered	286	89.15	1.04	380.06	4.77
4000 2-3 Other ADG Combos, Females Age 17-34	934	32.63	0.38	92.28	1.16

### 1994 and 1995 Resource Use (con't)

1994 ACG	Enrollees (n)	1994 Costs		1995 Costs	
		PMPM \$	ACG/ Avg.	PMPM \$	ACG/ Avg.
5060 10+ Other combos, Age > 16, 3 major ADGs	244	1,508	17.65	458	5.75
5070 10+ Other ADG combos, Age 16 >, 4+ maj ADGs	142	4,499	52.67	1,100	13.80
5200 Non-Users	10,434	0.00	0.00	31.66	0.40
5320 Infants: 0 - 5 ADGs	66	80.18	3.28	44.30	0.56

### ACG Capitation Simulation at an HMO

Group type	Payment system	Diff. from 'perfect' payment
Sicker than average	Demographic	5.2% underpayment
	ACG	0.7% overpayment
Healthier than average	Demographic	7.9% overpayment
	ACG	0.6% underpayment

(Each row based on 30 groups of 3,000 enrollees at a large HMO.)

Source: Fowles, J. et al JAMA, 10/23/96

### Maryland Medicaid "1115 Waiver" Risk Adjustment Capitation Methodology

- ACGs were used to develop about nine prospective "Risk Adjusted Capitation" cells.
  - Separate cells for families (e.g. AFDC) and disabled (e.g. SSI).
  - These cells vary by a factor of twenty. The payment ranges from a low of \$44 a month to a high of \$1470 a month.
- Age/gender cells are used for those without claims/encounter data (including newborns).

### Maryland Medicaid Methodology (continued)

- A separate retrospective global payment (about \$4,000) will be made for all deliveries.
- Persons with AIDS will have their own capitation rates (about \$2,000 a month).
- All services provided by mental health providers will be "carved-out" to a special state managed care program.

### Maryland Methodology (continued)

- The 1-2% of the population with one of approximately thirty "rare and expensive" conditions will be treated on a fee-for-service basis.
- For all capitated enrollees, there is a \$61,000 stop loss for hospital care.
- The "Maryland Model" risk-adjusted capitation system was implemented on July 1, 1997.

### Capitation Simulation for Maryland Medicaid 1993 to 1994: Alternative Adjusters

(Numbers reflect percent deviation between capitation rates and actual costs)

"Use" Category*	Age & Gender			RACs**		
	All	AFDC	Disabled	All	AFDC	Disabled
Low	19.2	15.9	22.0	4.9	7.4	2.7
Average	-0.2	0.2	-0.5	-0.5	0.1	-0.9
High	-11.7	-10.2	-12.8	2.5	-4.2	-1.2

\* Each row reflects 5 "MCOs" w/ 50,000 enrollees  
 \*\* RACs=ACG-based "Risk Adjustment Capitation" Cells

### ACG BASED EFFICIENCY PROFILING OF PHYSICIANS

### Using ACGs to Risk-Adjust Profiling of Physician Group Practices within an HMO

Contracting Provider	PMPM \$	Unadjusted Efficiency Ratio	ACG Case-Mix Factor	ACG Adjusted Efficiency Ratio
#1	\$105	1.22	1.02	1.20
#2	103	1.19	1.21	.99
#3	91	1.06	.83	1.27
#4	66	.76	.69	1.11
ALL*	\$ 86	1.00	1.00	1.00

\* Includes other sites.

### Risk Adjusted Physician Profiling Using ACGs: an Example from Medicare

Type of Service	Actual Resource Use* per Yr.	Actual/State Avg.	Actual/ACG Expected
<b>Ambulatory</b>			
Physician Services	\$ 1256	1.49	1.10
Lab/X-ray	782	1.40	1.03
Total	2038	1.42	1.05

Note: Represents services from all sources for 598 Medicare FFS patients cared for by one primary care MD.