건강보험심사평가원-한국보건경제정책학회 주최
한국·일본·대만 DRG 국제심포지엄

International Symposium for DRG based Payment

한국·일본·대만의 DRG 지불제도 운영경험과 발전전략

Experiences of DRG based payment in Korea, Japan and Taiwan, and its Future

일시 : **2011. 12. 16(금) 14:00~18:00**

장소 : 대한상공회의소 의원회의실

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Health Insurance Review & Assessment Service

Experience & prospect of DRG based payment in Korea

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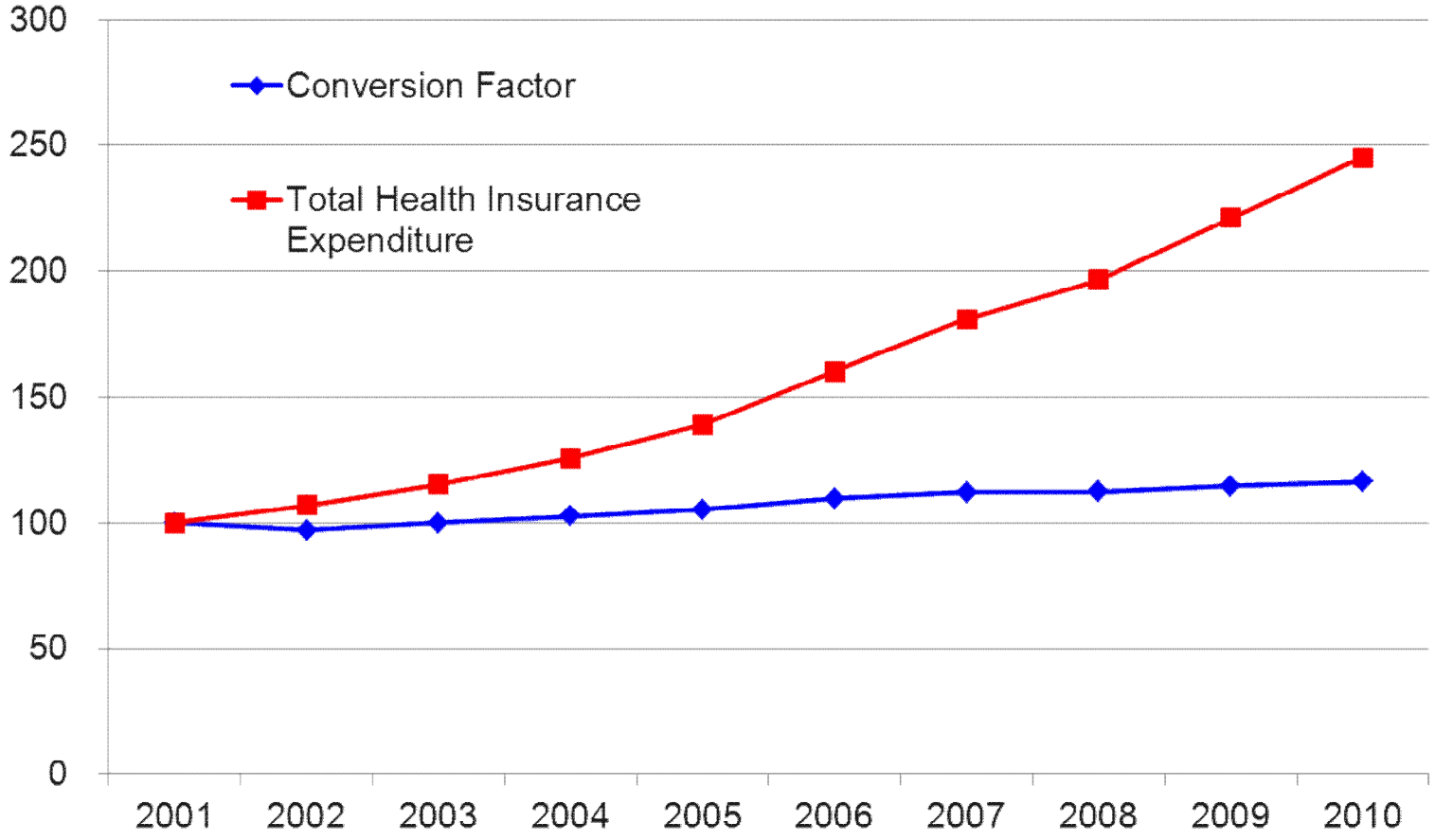
1. Background

DRG based payment in Korea

Payment system for health services in Korea

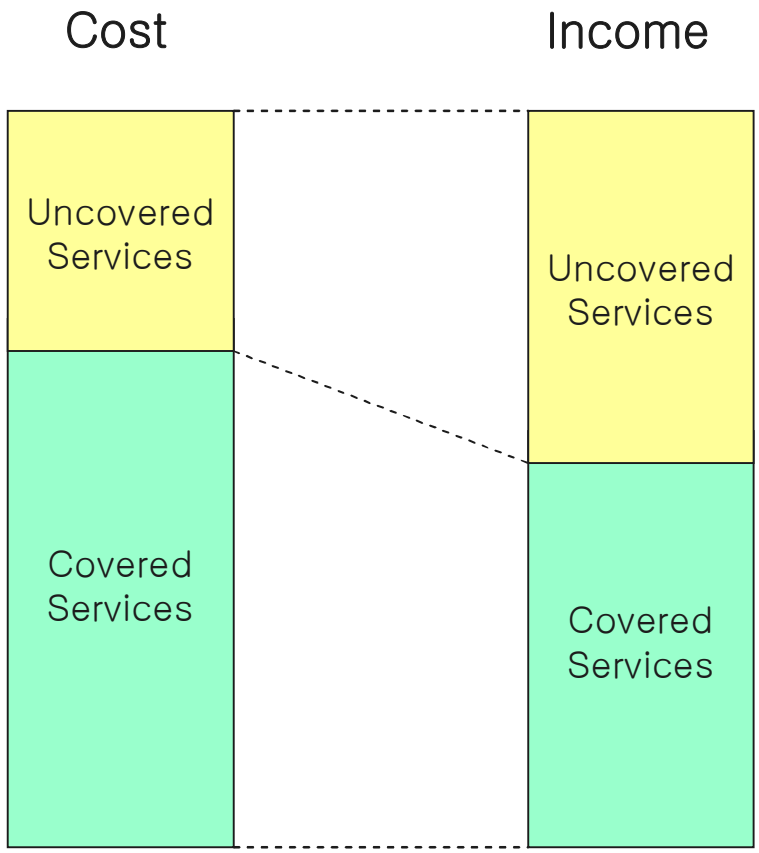
- Basically health services are reimbursed through fee-for-service (FFS) for all services and at all referral levels
- Fee for Service = Relative Value X Conversion Factor X Type Adjustment Rate
- Relative Value is determined by amount of resource (physician work + practice expense + malpractice expense)
- Conversion Factor is negotiated between insurer and providers annually
- Type Adjustment Rate is fixed value by type of treatment institution

Conversion factor and total health insurance expenditure

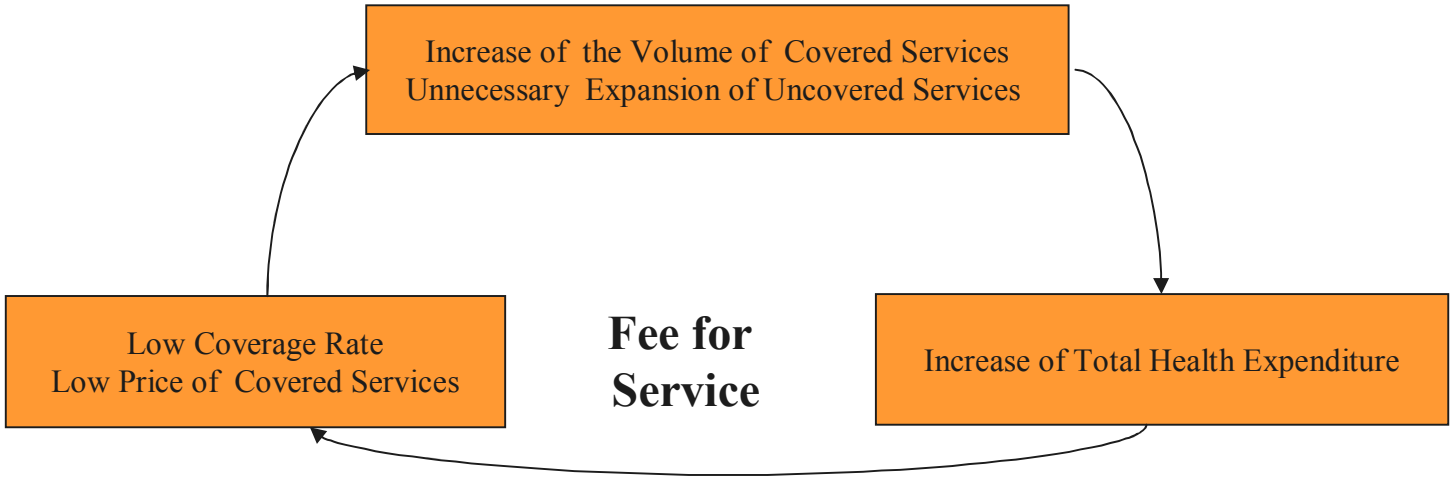


Problems of uncovered services

- Price of uncovered services are determined by providers without intervention of government or insurer
- The profit of uncovered service is higher than that of covered service
- So, uncovered services like cosmetic surgeries are unnecessarily expanding, but covered services are relatively shrinking



Vicious cycle in health insurance



Providers : Low price of covered services and distortion of medical practice
Insurer : Rapid increase of health insurance expenditure
Insured : High coinsurance

Need for payment system reform

- Although unit price(conversion factor) is constrained, total expenditure is rapidly increasing because of service volume increase
- So payment system reform is needed to control service volume increase
- Introduction of prospective payment system like DRG, Capitation, Global budgeting is considered

2. DRG PPS for 7 disease groups

DRG based payment in Korea

History of DRG PPS in Korea

- 1994 : The Committee of Medical Security Reform recommended the introduction of DRG payment system
- 1997 : 1st Demonstration Program (8 disease groups)
- 1998 : 2nd Demonstration Program (8 disease groups)
- 1999 : 3rd Demonstration Program (15 disease groups)
- 2002 : Introduction of DRG PPS for 7 disease groups on voluntary basis

7 Disease groups
(51 DRGs in KDRG 2.1)

- Caesarean section(3 DRGs)
- Appendectomy(6 DRGs)
- Lens procedure(12 DRGs)
- T&A procedure(4 DRGs)
- Inguinal & femoral hernia procedure(8 DRGs)
- Uterine & adenexa procedure for non-malignancy(12 DRGs)
- Anal procedure(6 DRGs)

* The total number of DRGs increased to 61 since KDRG 3.3 implementation (2010)

Type and number of providers participating in DRG PPS (1)

Type	Demonstration Program				
	1st	2nd	3rd		
	1997	1998	1999	2000	2001
Total	54	132	798	1,268	1,645
Tertiary care Hospital	2	11	16	16	15
General Hospital	22	61	95	111	108
Hospital	19	29	78	106	131
Clinic	11	31	609	1,035	1,391

Type and number of providers participating in DRG PPS (2)

Type	DRG PPS on voluntary basis								
	2002	2003	2004	2005	2006	2007	2008	2009	2010
	(participating rate)	(participating rate)	(participating rate)	(participating rate)	(participating rate)	(participating rate)	(participating rate)	(participating rate)	(participating rate)
Total	1,839	1,965	2,066	2,213	2,277	2,350	2,365	2,283	2,325
	[57.5%]	[59%]	[60.6%]	[62.8%]	[66.4%]	[69.0%]	[69.6%]	[68%]	[69.9%]
Tertiary care hospital	4	2	2	1	1	1	1	–	–
	[9.5%]	[4.8%]	[4.8%]	[2.4%]	[2.3%]	[2.3%]	[2.3%]	–	–
General hospital	109	112	102	101	96	101	93	77	75
	[45.2%]	[46.5%]	[42.2%]	[40.6%]	[37.9%]	[38.7%]	[34.6]	[28.6]	[27.4]
Hospital	153	174	184	188	201	198	189	175	174
	[49%]	[47.9%]	[42.9%]	[40.5%]	[44.0%]	[41.7%]	[40.8]	[38.8]	[39.2]
Clinic	1,573	1,677	1,778	1,923	1,979	2,050	2,082	2,031	2,076
	[60.5%]	[62.5%]	[66%]	[69.5%]	[74.0%]	[78.0%]	[79.3]	[78.3]	[80.9]

No. of claims & expenses paid by DRG PPS

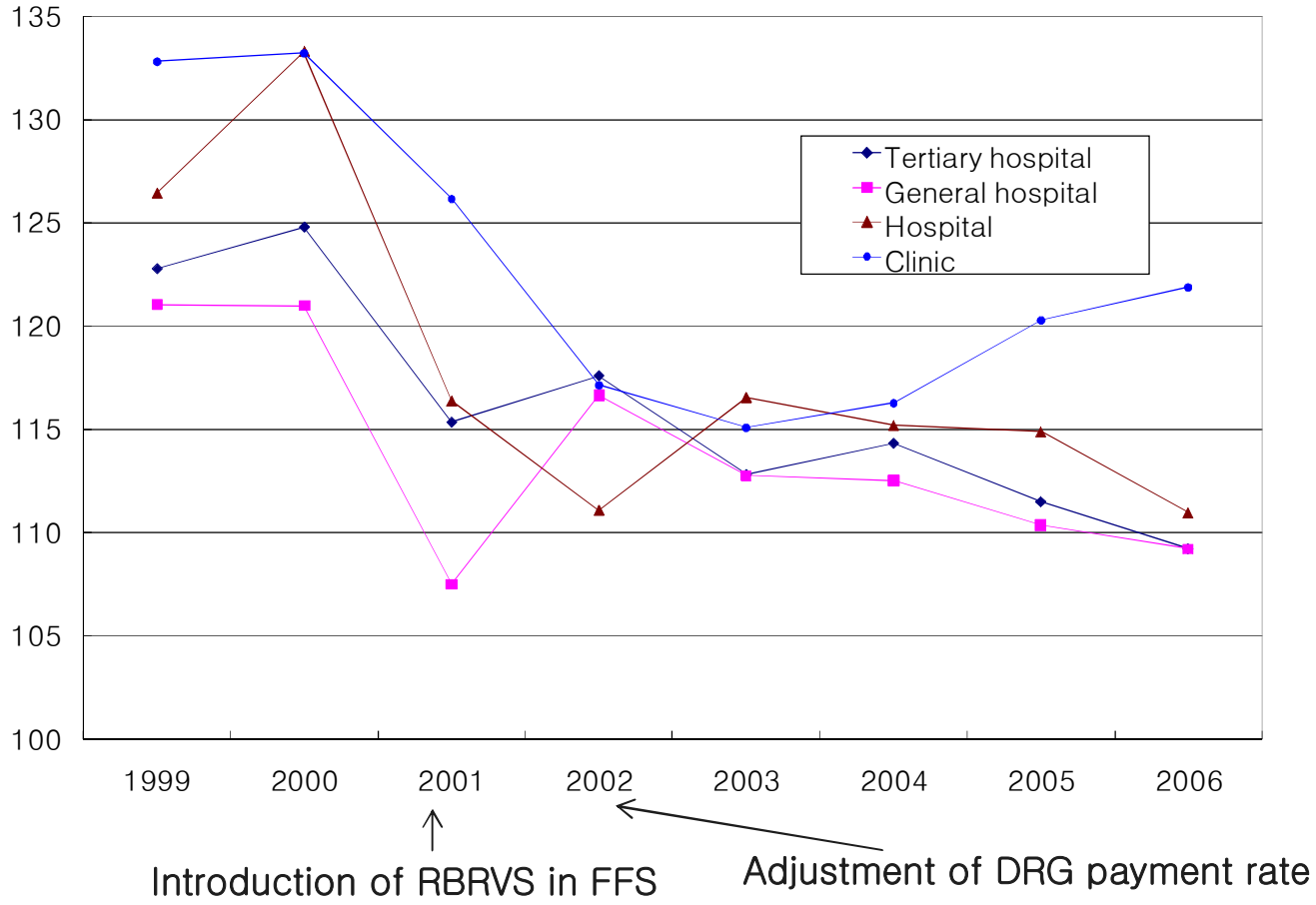
			No. of Claims	Total expenses (million Won)	Amount paid by insurer (million Won)
Demonstration Program	1st	1997	41,780	28,541	23,059
	2nd	1998	167,878	128,734	104,274
	3rd	1999	375,766	286,828	233,652
		2000	581,236	425,219	347,396
		2001	650,970	484,477	397,621
DRG Case payment on elective basis		2002	640,919	457,532	367,534
		2003	655,810	490,797	393,826
		2004	594,681	480,946	387,022
		2005	611,609	504,066	406,055
		2006	635,615	543,713	440,963
		2007	671,511	602,749	489,055
		2008	687,147	622,380	501,700
		2009	705,877	657,544	530,300
		2010	726,281	706,062	569,560

Problems of DRG PPS for 7 disease groups

- Government tried to introduce the compulsory DRG PPS several times
- However because of strong opposition of providers, DRG PPS was introduced on voluntary basis
- Voluntary DRG PPS has many problems
  - Providers which have high cost(e.g. large hospital) remain in FFS
  - Only providers which have low cost(e.g. clinics), so have more profit than FFS, participate in DRG PPS
  - So, cost control mechanism of DRG PPS does not work
- In Addition, PPS is applied to only 7 disease groups, so we have the task to expand DRGs to which PPS is applied

Ratio of DRG payment rate to FFS payment rate

- DRG payment rate is higher than FFS because of higher coverage rate & incentive
- Recently Difference between DRG payment rate and FFS payment rate is decreasing especially for large hospitals



3. New approach, KCPS

DRG based payment in Korea

New approach for introducing DRG based payment

- Developing mixed payment system which can be applied to the all inpatients
  - Payment per admission episode
  - Per-diem payment
  - FFS for physician's procedure or high price services
- Introducing DRG based payment to all patients by hospital instead of introducing DRG PPS by disease groups
  - Although it is easy to apply DRG PPS to simple disease groups, it is very difficult to expand DRG PPS to complicated disease groups

Korean Case Payment System (KCPS)

- New DRG based payment system is named as “KCPS”
- KCPS demonstration program
  - NHIC Ilsan Hospital
    - 1st : April 2009 ~ June 2010 『20 ADRGs』
    - 2nd : July 2010 ~ June 2011 『76 ADRGs』
    - 3rd : July 2011 『553 ADRGs』; all patients except a few cases
  - Regional public hospitals
    - 3 regional public hospitals : July 2011 『76 ADRGs』
    - 40 regional public hospitals : 2012 『553 ADRGs』

Payment scheme of KCPS

DRG PPS for 7 disease groups

	Bundled services	Unbundled services
payment	Payment per admission episode	FFS for new technology, diet, etc

KCPS

	Bundled services	Unbundled services
payment	Payment per admission episode + Per diem payment	FFS for 80% of unit price (20% is paid with bundled services)

Bundled & unbundled services

Bundled services

- Procedures, drugs, materials the unit price of which are lower than 100,000 won
- Including not only covered services but also uncovered services
- The following items are bundled regardless of unit price
  - Computed tomography (CT)
  - Ultrasonography (excluding ultrasonography for procedure)

Unbundled services

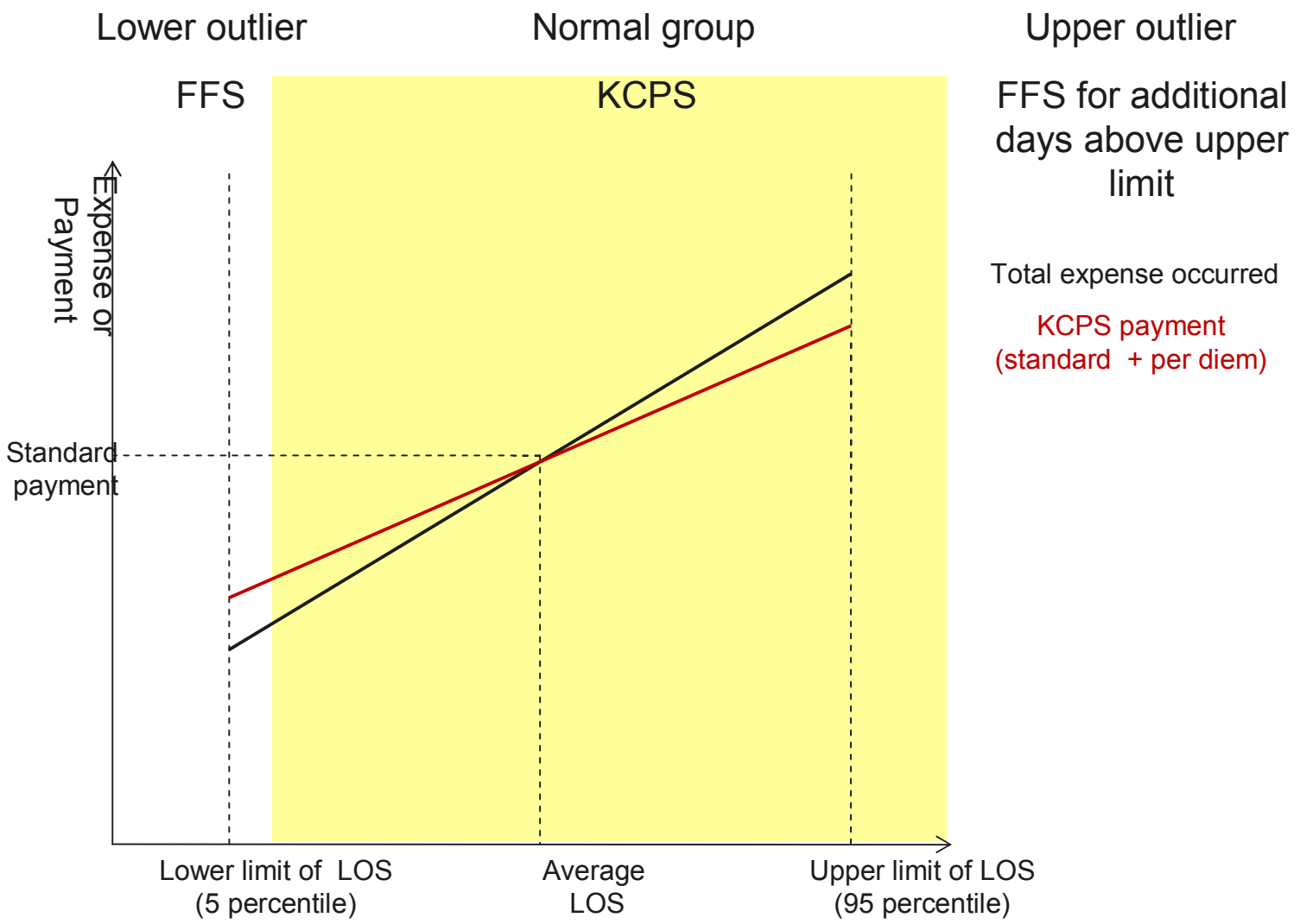
- Procedures, drugs, materials the unit price of which are more than 100,000 won
- The following items are unbundled regardless of unit price
  - Doctors' procedure (for example, surgeries or endoscopic procedures)
  - Particular drugs used in psychiatrics
  - ICU or segregation room cost
  - Limited antibiotics
  - CPR
  - Dialysis
  - Blood and blood component
  - Meals

Calculation of KCPS payment

KCPS payment of DRGi patient = **standard payment** for DRGi + (real patient days – average patient days of DRGi) x **per-diem payment** for DRGi + **FFS payment**

- Standard Payment for DRGi : calculated using the treatment expense of inpatients hospitalizing for average inpatient days of DRGi
- Per-diem Payment for DRGi : set as 80% of real per-diem expense to give incentive to low LOS
- FFS payment : set as 80% of unit price to prevent the excessive utilization of FFS items

Payment for bundled services



Patient coinsurance

- Bundled services
  - Till average LOS : 20%
  - After average LOS : 23% except psychiatric patients
- Unbundled services
  - 20%

Hospital specific adjustment rates

- Hospital specific adjustment rates are used for the transition from FFS to KCPS under budget neutrality
- There are 3 kind of adjustment rates
  - Adjustment rate for medical treatment groups
  - Adjustment rate for surgical treatment groups
  - Adjustment rate for psychiatric patients
- In future, these should be phased to the flat rate specific to the nature of hospital (e.g. the position on the health referral system, medical education, rural hospital etc.)

Evaluation of KCPS (1)

- It is too early to evaluate the effect of KCPS
- Some results of evaluation of KCPS demonstration program in Ilsan hospital (2010)
  - Distribution of patient groups (’09. 7 – ’10. 6)
    - Normal group: 93%
    - Upper outlier: 4%
    - Lower outlier: 3%
  - Payment accuracy (compared to FFS) : higher than original DRG PPS

Evaluation of KCPS (2)

- Increased coverage rate (patient burden decreases by 7.9%)
- Increased insurance burden (9.5%) due to increasing coverage rate and 5% incentive)
- The effects on cost and length of stay were not notable
- Unbundled services including high price uncovered services did not increase significantly

4. Obstacles and prospect

DRG based payment in Korea

Healthcare environment hindering case payment

- Most healthcare providers are private
- Hospitals and clinics are competing for inpatients
- Hospitals admit not only acute patients but also long term care patients
- Low price of covered services
- Low coverage rate
- The culture of utilizing health care freely
- The upgradation and diversification of consumers' need

Strong opposition of healthcare providers

- Doctors fear that DRG case payment lower their income

  “Although case payment is higher than FFS in present, the cost containing nature of case payment will decrease doctors’ income in the future”

- Also, doctors fear that the quality of care decline under case payment
- Large hospitals, especially tertiary teaching hospitals are anxious that severe patients are transferred to them under case payment

Valid data are not available

- The data on the uncovered services are not available
  - The portion of uncovered services in total medical expenditure : 19.6 % (2009 inpatients)
  - The uncovered services are not standardized, also the prices of them vary widely
- The error rates of disease codes on claims data are very high, According to HIRA survey in 2002,
  - Error rate of primary diagnoses on inpatient claims data in 3 digit : 23.6%
  - Error rate of secondary diagnoses on inpatient claims data in 3 digit : 50.6%

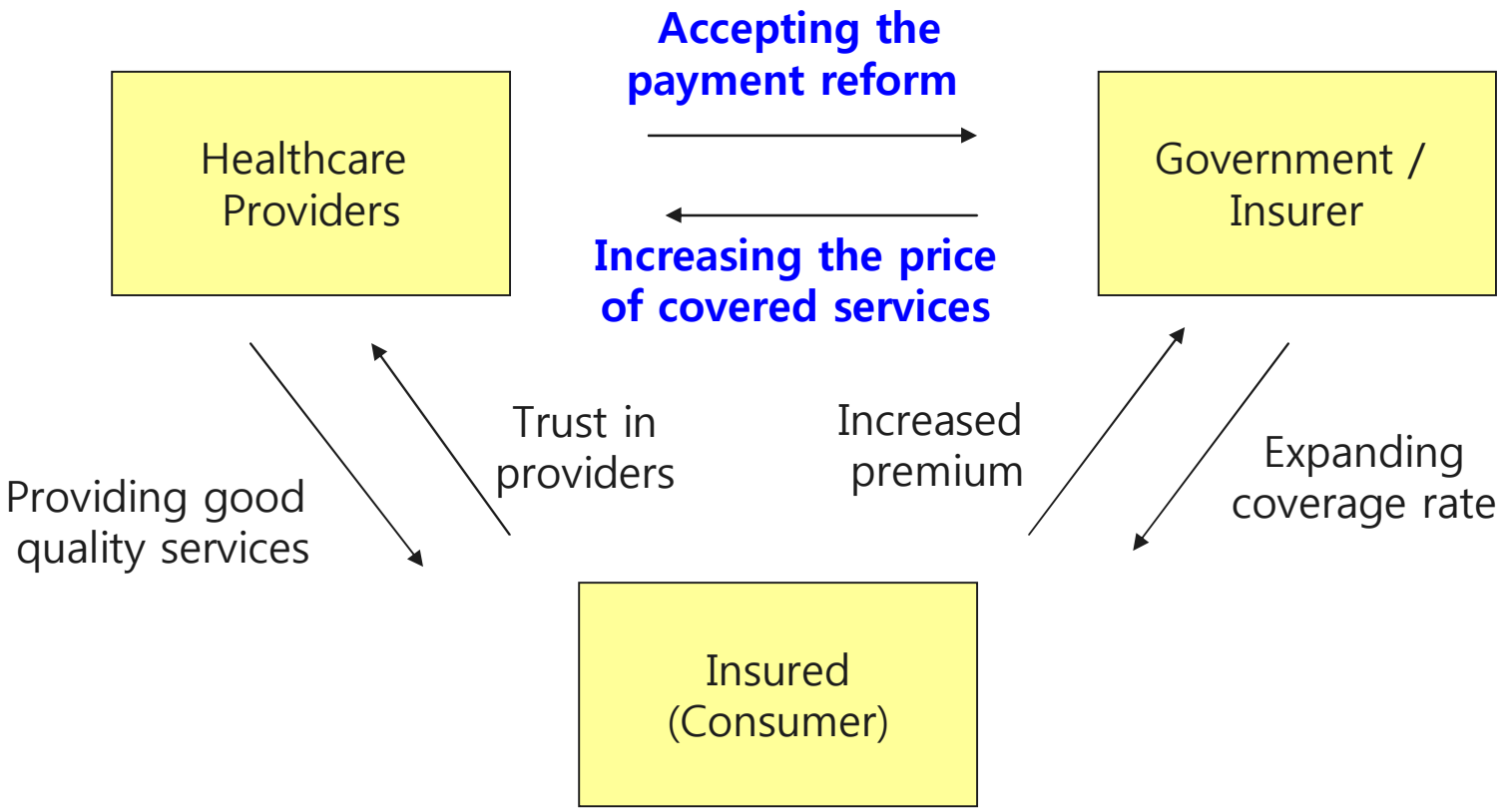
Low resources and support

- Lack of manpower
  - Lack of researchers
  - Lack of staffs managing case payment system
  - Lack of support of medical specialists
- Lack of organizational support
  - Specialized organization handling coding & patient classification system is needed
  - Countries introduced DRG system successfully have specialized organizations like NCCH (Australia), CIHI (Canada), DMIDI (German)

Proposal to expand KCPS in the future

- Prototype development through KCPS demonstration program
- Social agreement among insurer, providers, and insured on the payment reform : the legislation of payment reform act
- Refinement of patient classification and payment system
- Step by step introduction of KCPS with the reform of healthcare environment

Social agreement is vital



5. Korean case-mix system

DRG based payment in Korea

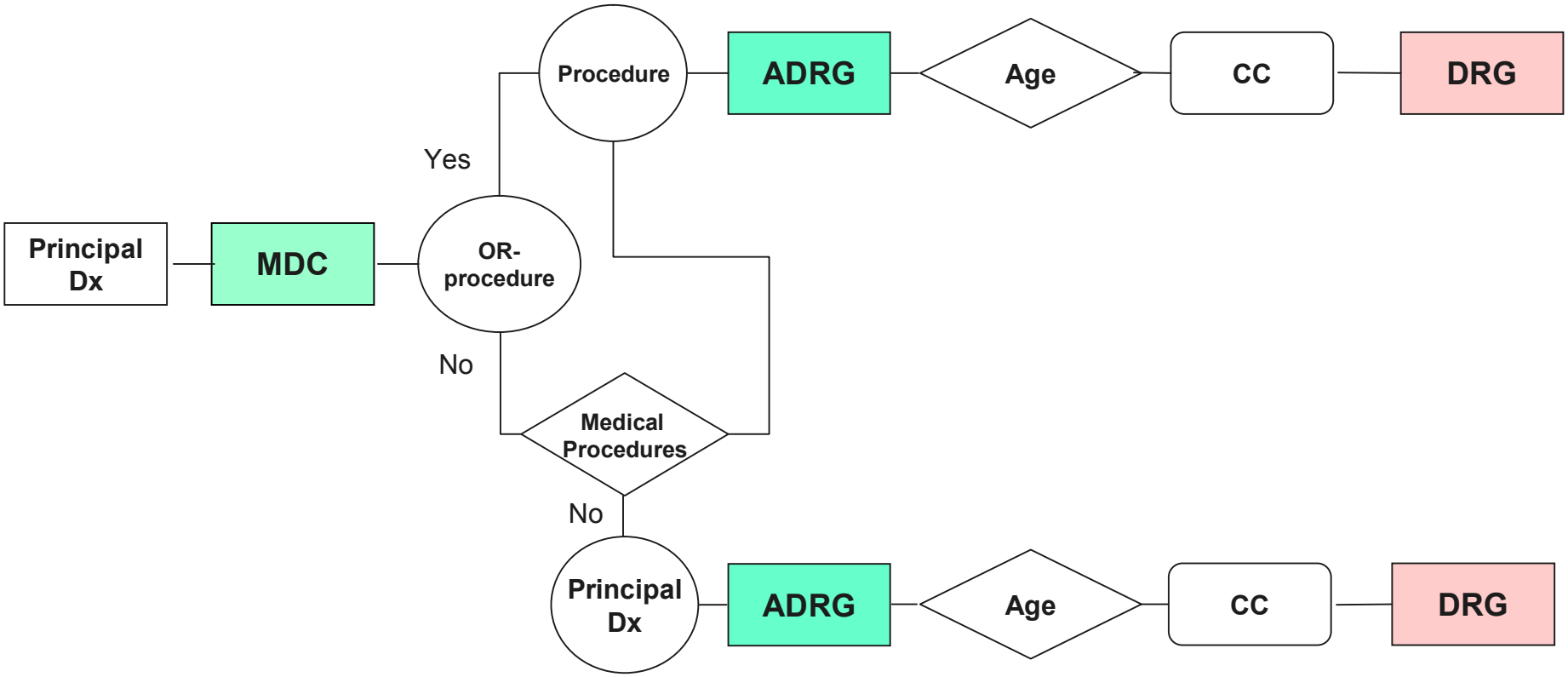
Korean case mix system

- Acute Inpatients
  - Korean DRG(KDRG)
- Ambulatory Patients
  - 588 Ambulatory Patient classifications
  - Korean Outpatient Group(KOPG)
  - Korean Outpatient Group-Oriental Medicine(KOPG-OM)

History of Korean DRG

- KDRG Version 1.0 : developed based on HCFA-DRG(1986)
- KDRG Version 2.0 : developed based on Yale RDRG(1991)
- KDRG Version 3.0 : developed based on Korean cost data & clinician's opinion (2002)
- KDRG is updated annually by HIRA

Structure of KDRG



MDC : Major Diagnostic Category

ADRG : Adjacent DRG

CC : Comorbidites &Complications

Structure of KDRG Version 3.3

- Diagnosis Code : ICD-10-KM
- Procedure Code : Korean Health Insurance Classification of Procedures in Medicine
- MDC : 23 groups
- ADRG
  - Large group : 386
  - Small group : 674
- Age group : 102 ADRGs split into 214 AADRGs(Age split ADRGs)
- CC classification : Each AADRG has 1 - 4 severity levels
- No. of Final DRGs : 1,817

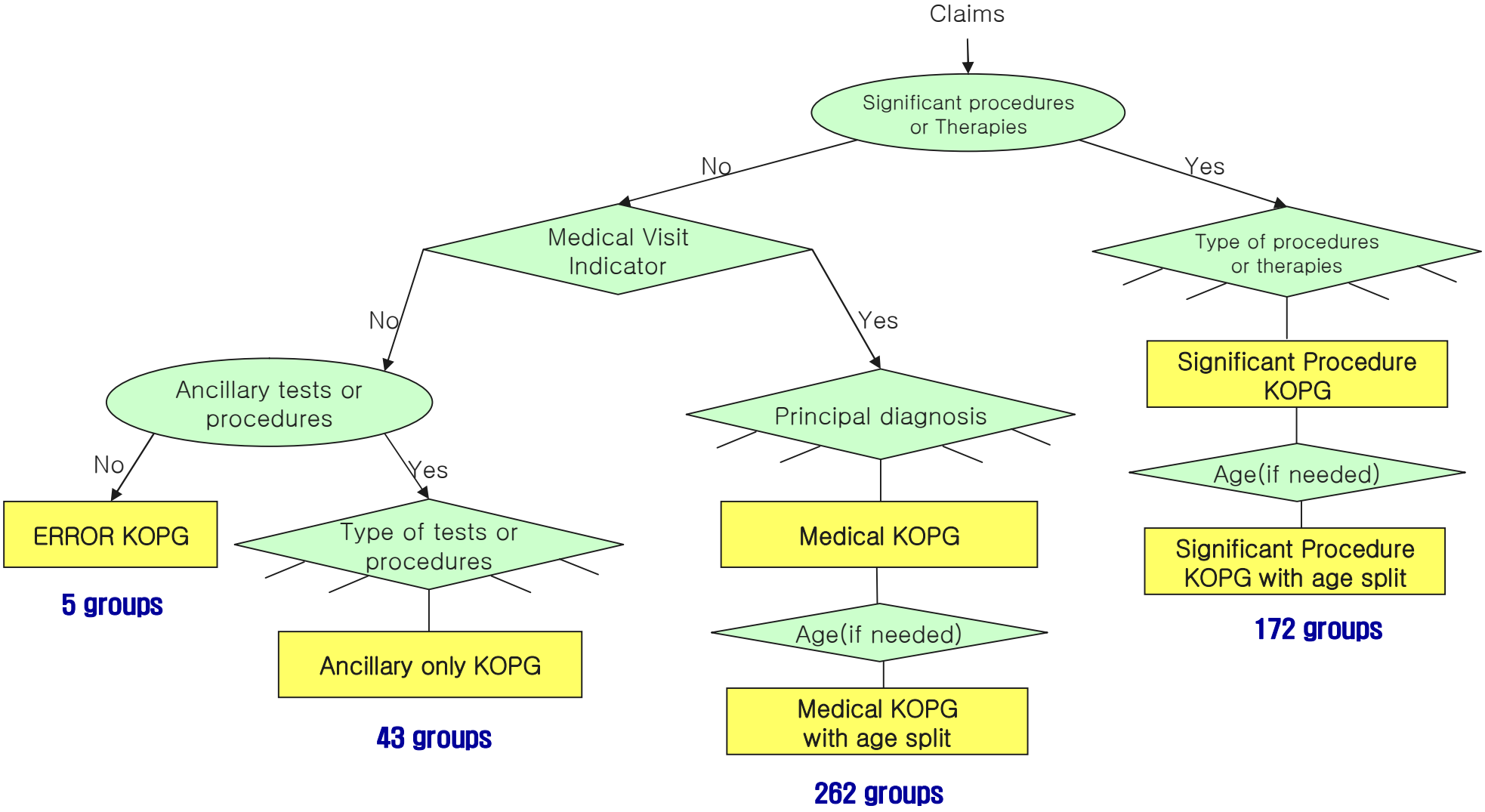
588 ambulatory patient classifications

- Developed for the comparison of outpatient charge per claim
- Structures
  - 1st Step : Principal diagnosis classification - into 261 groups by middle terms of ICD-10
  - 2nd Step : Age split - child(0-17), adult(18-64), elderly(65-)
  - 3rd Step : Presence of surgical treatments
  - Final Groups : 588

Korean OPG development

- 588 APCs use only principal diagnosis to classify outpatients, So it does not differentiate the type of procedures performed in outpatient
- In order to substitute 588 APCs, Korean OPG(Outpatient Group) development project initiated in 2003
- KOPG is developed with the reference to American APG version 2.0

Structure of Korean OPG



Use of case mix system

- Accreditation of Tertiary Care Hospital
  - to evaluate inpatient case mix complexity
- Payment
  - DRG PPS for 7 disease groups
- Monitoring of Costliness Index(C.I.)
  - C.I. = ∑(no.of patients ×real expense by KDRGs) / ∑(no.of patients×expected expense by KDRGs)
  - HIRA feedback C.I. to providers for self-regulation. and use it to determine the review rate(the higher C.I. the more claims review)

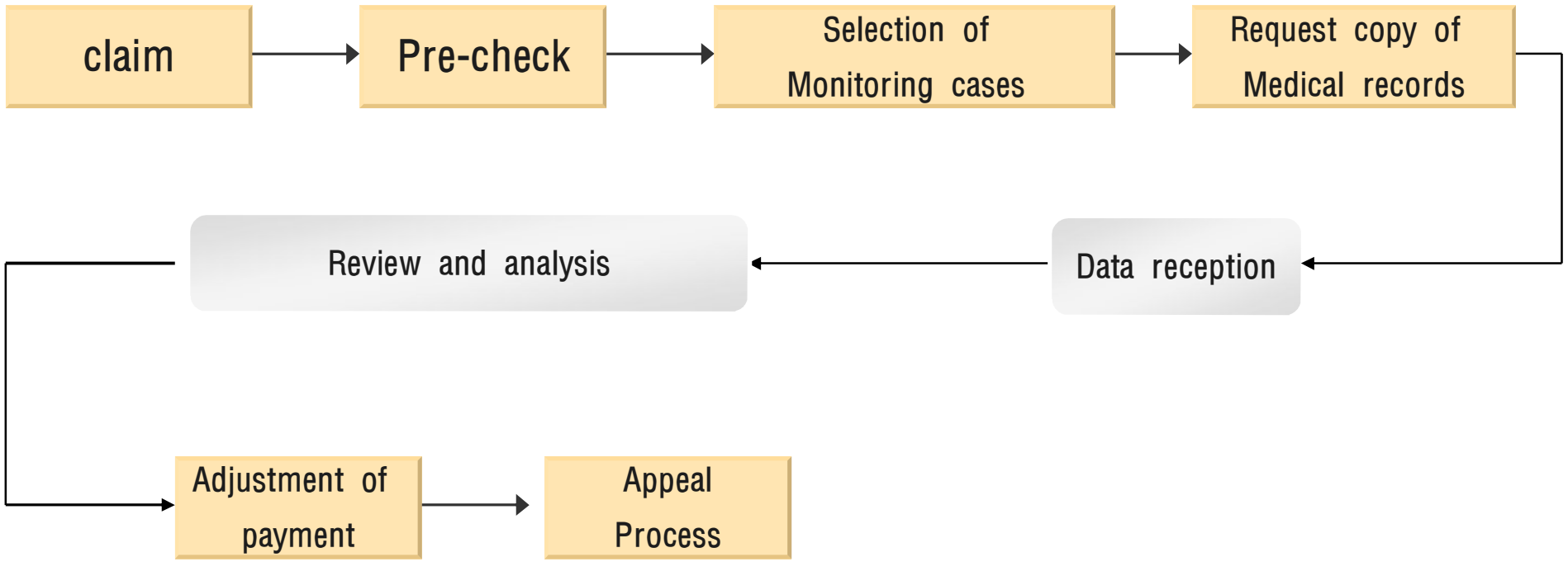
6. Monitoring system

DRG based payment in Korea

Monitoring content

- Disease coding error, especially up-coding
- Separate FFS claims of services bundled in case payment
- DRG split
- Appropriateness of the expense of outliers
- Overcharging patient coinsurance
- Quality of care and appropriateness of hospital discharge

Outline of monitoring process



Monitoring process

- Selection of monitoring cases
  - DRG PPS for 7 disease groups : 4.7% (2010)
  - KCPS demonstration program : 15-40%(2011)
- Monitoring of quality of care
  - Readmission rate
  - Self reported checklist for improving quality of care

Result of monitoring for 7 disease groups (2010)

(unit : %, million won)

구분	Monitoring Cases		Adjusted Cases		% of adjusted no	% of adjusted amount
	No	Amount	No	Amount		
Sum	17,748	9,367	4,174	181	23.5	1.9
Separate claims for services bundled in case payment	15,879	7,831	3,931	105	24.8	1.3
DRG split	1,556	1,106	112	33	7.2	3.0
FFS claim for the case that should be claimed by DRG PPS	313	429	131	43	41.9	10.0

Session 2

일본과 대만의
DRG 지불제도 운영경험과 시사점

Experiences of DRG based payment in Japan and Taiwan

Experience of DRG/DPC Based Payment in Japan

2011.12.16 at HIRA. KOREA

Takashi Fukuda, Ph.D.
Center for Public Health Informatics
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Topics

1. A trial of DRG Based Payment System in Japan

2. Basic Structure of DPC Based Payment System in Japan

3. Early Influence of DPC Based Payment System in Japan

A Trial of DRG Based Payment

- First introduced in 1998
- Diagnosis Related Groups(DRG) based
- Payment for Each Admission
- 183 DRGs
- included in flat rate: room&board, medicine, diagnostic tests and imaging, etc.
- fee for service: operation, expensive procedures
  10 hospitals, mostly public

Result of the trial

- Not much influence on the average length of stay nor occupancy rate
- Too small number of DRGs, less than half patients were covered in each hospital
- In some cases, payment was very high compared to the previous fee-for-service payment

- The system was not adopted in Japan.

Study of Diagnosis Procedure Combination (DPC)

- Started in 2001
- DPC version 1: 183 groups used in the DRG trial
- DPC version 2: 532 groups; Diagnosis (ICD-10) and Procedure code (K-code)
- DPC version 3: 15 Major Diagnostic Categories (MDC)
- DPC 2003: 2552 groups
- DPC 2010: 2658 groups
- Diagnosis dominant, not procedure dominant

Implementation for Payment

- Started in April 2003
- DPC 2003: 2552 groups
- 82 special functioning hospitals
  - University Hospitals
  - National Center Hospitals
- Expanded to 1391 hospitals as of March 2010

Current DPC Based Payment System

- 1391 hospitals
- Inpatients in General Wards
- Excluded patients
  - Death within 24 hours from admission
  - Organ transplant
- 82 special functioning hospitals

  University Hospitals

  National Center Hospitals
- Expanded to 1390 hospitals as of March 2010

Diagnosis Procedure Combination

- Patient classification system based on diagnoses and major procedures
  - Major Diagnostic Categories (MDC) 18
  - Primary Diagnosis (ICD-10) 507
  - Total DPC groups 2658

    DPC based payment 1875

Major Diagnostic Categories (MDC)

- MDC1: neurology
- MDC2: ophthalmology
- MDC3: otorhinolaryngology
- MDC4: respiratory
- MDC5: circulatory
- MDC6: digestive, gastroenterology
- MDC7: muscle-skeleton
- MDC8: dermatology
- MDC9: breast
- MDC10: endocrine
- MDC11: genitourinary
- MDC12: perinatal
- MDC13: blood, blood-forming organs
- MDC14: neonatal
- MDC15: pediatrics
- MDC16: trauma, burn
- MDC17: mental
- MDC18: other

DPC Based Payment

- Included in per diem flat rate
  - basic inpatient fee (room & board + regular nursing care), laboratory tests, diagnostic imaging, medication, low cost procedures (less than 10000 yen per procedure)
- Fee for service payment
  - surgery, anesthesia, endoscope, pathology, rehabilitation, etc.

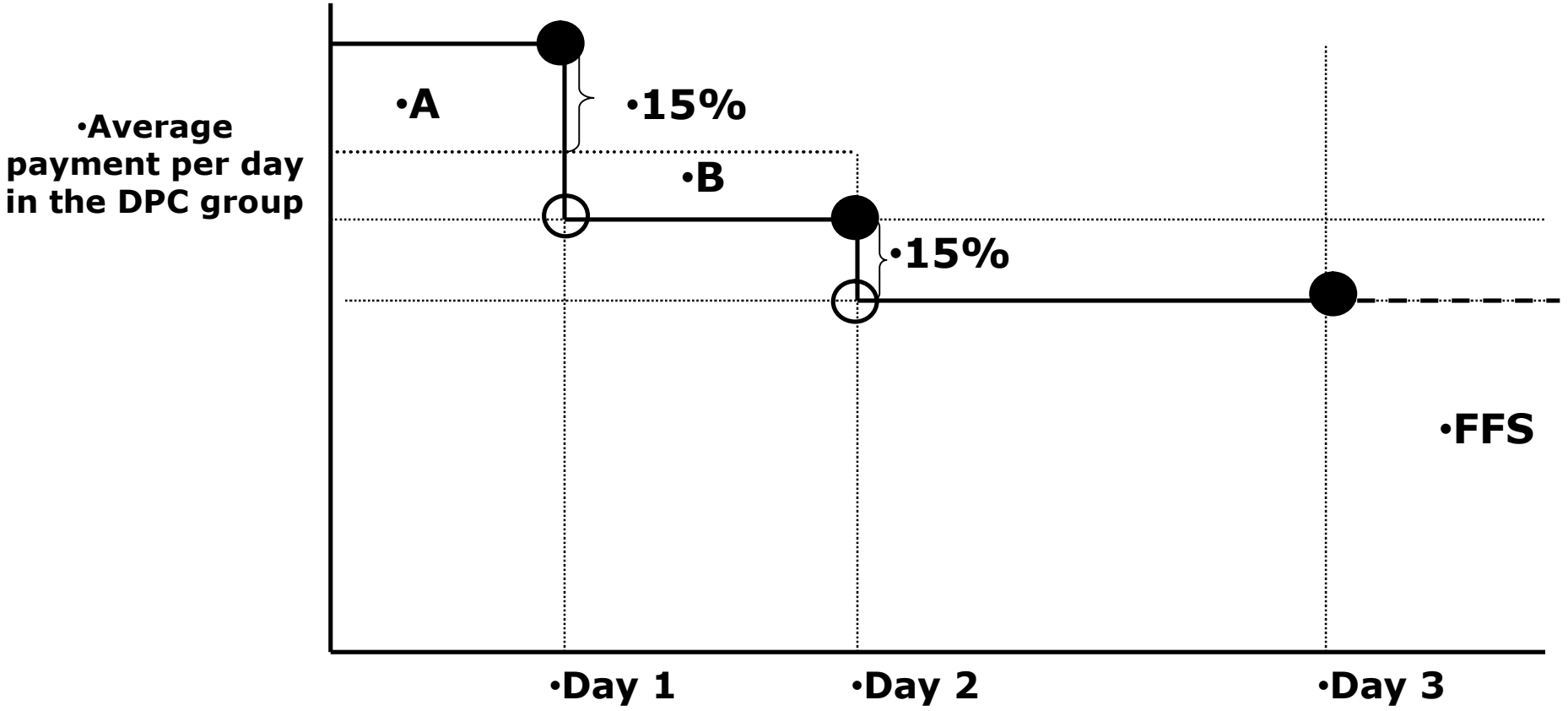
Example: Appendicitis

- MDC6: digestive system
- Primary Diagnosis: appendicitis (code 060150)
- Major Procedure: appendectomy
- Complications: no
- Key Dates
  - Hospital Day 1 (25 percentile of length of stay): 3 days
  - Hospital Day 2 (average length of stay): 6 days
  - Hospital Day 3 (average length of stay + 2SD): 11 days
- Payment
  - Admission-Day1(1-3 day): 34820 yen per day
  - Day1 – Day2(4-6 day): 20950 yen per day
  - Day2 – Day3(7-11 day) : 17810 yen per day
  - After Day3: fee for service payment
- Fees for surgery and anesthesia are paid separately

Example: Appendicitis

			Key dates			Payment(JPY) per day		
Diagnosis	Surgery	Complication	1	2	3	Adm-Day1	Day1-Day2	Day2-Day3
Appendicitis	No	No	3	5	10	31420	21180	18000
Appendicitis	No	Yes	5	9	18	31200	22040	18730
Appendicitis	Other surgery		7	14	27	30800	22760	19350
Appendicitis	Appndectomy	No	3	6	11	34820	20950	17810
Appendicitis	Appndectomy	Yes	6	11	23	31420	22400	19040
Appendicitis	Colonectomy		8	15	28	32270	20730	17620
* Complication: ileus, diabetes, other complications related to surgery								

How were the payment rates determined?



Payment Adjustment for Each Hospital

- Firstly introduced in 2003, so that average payment would be equal to the previous year
- Each hospital has own adjustment factor, and actual payment is calculated by (average payment rate)x(adjustment factor of each hospital)
- As a result, payment of each hospital is not unified. It is a new concept in Japan.

- However, there is a strong argument if we should keep the payment of previous year.

Change of Payment Adjustment Factor

- Current adjustment factor will be terminated in the future.
- New adjustment factor based on hospital functions is proposed.
  - Efficiency indicator
    - based on average length of stay compared to other DPC hospitals
  - Complex indicator
    - based on payment of one hospitalization among DPC hospitals
  - Coverage indicator
    - based on the number of DPC groups in each hospital
  - Emergency care indicator
    - based on early procedures of emergency care
  - Contribution to community health indicator
    - based on the points attributed to community health , such as cancer registration, disaster medicine, perinatal care center, etc.

- Partly applied from 2010

An Early Study on Influence of DPC Based Payment System

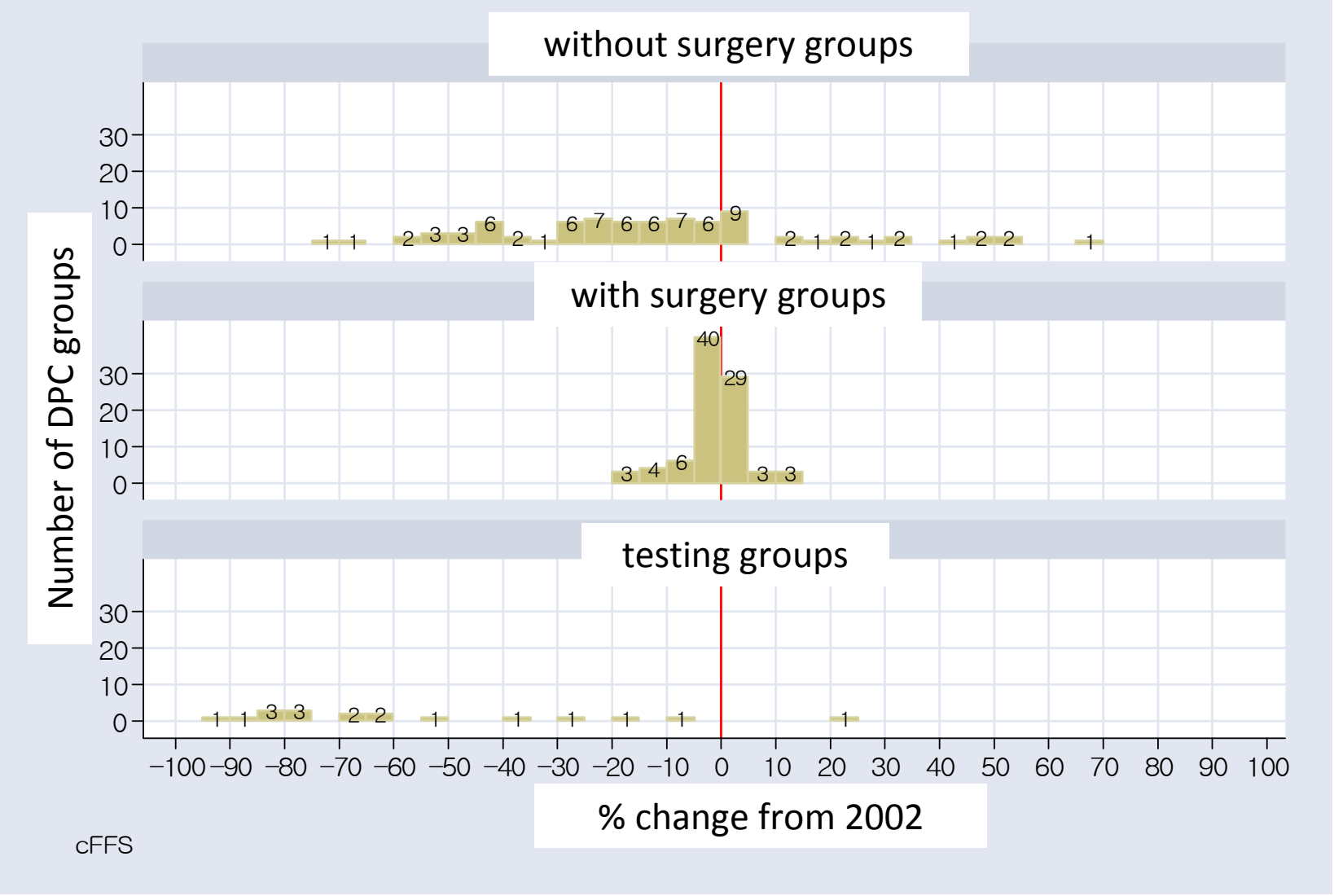
- Subject
  - 82 special functioning hospitals
- Data
  - fee for service payment equivalent data
  - Discharged patients 2002.7-10 266,677 cases
    2003.7-10 293,045 cases
- Analytical unit
  - DPC groups for 2003
  - Number of hospital >5, whose patients in each DPC group>10
  - DPC groups with surgery : 88 groups
  - DPC groups without surgery : 80 groups
  - DPC groups for diagnostic testing: 18 groups
- Payment
  - Inclusive in the flat rate
  - Fee for service

Hypotheses

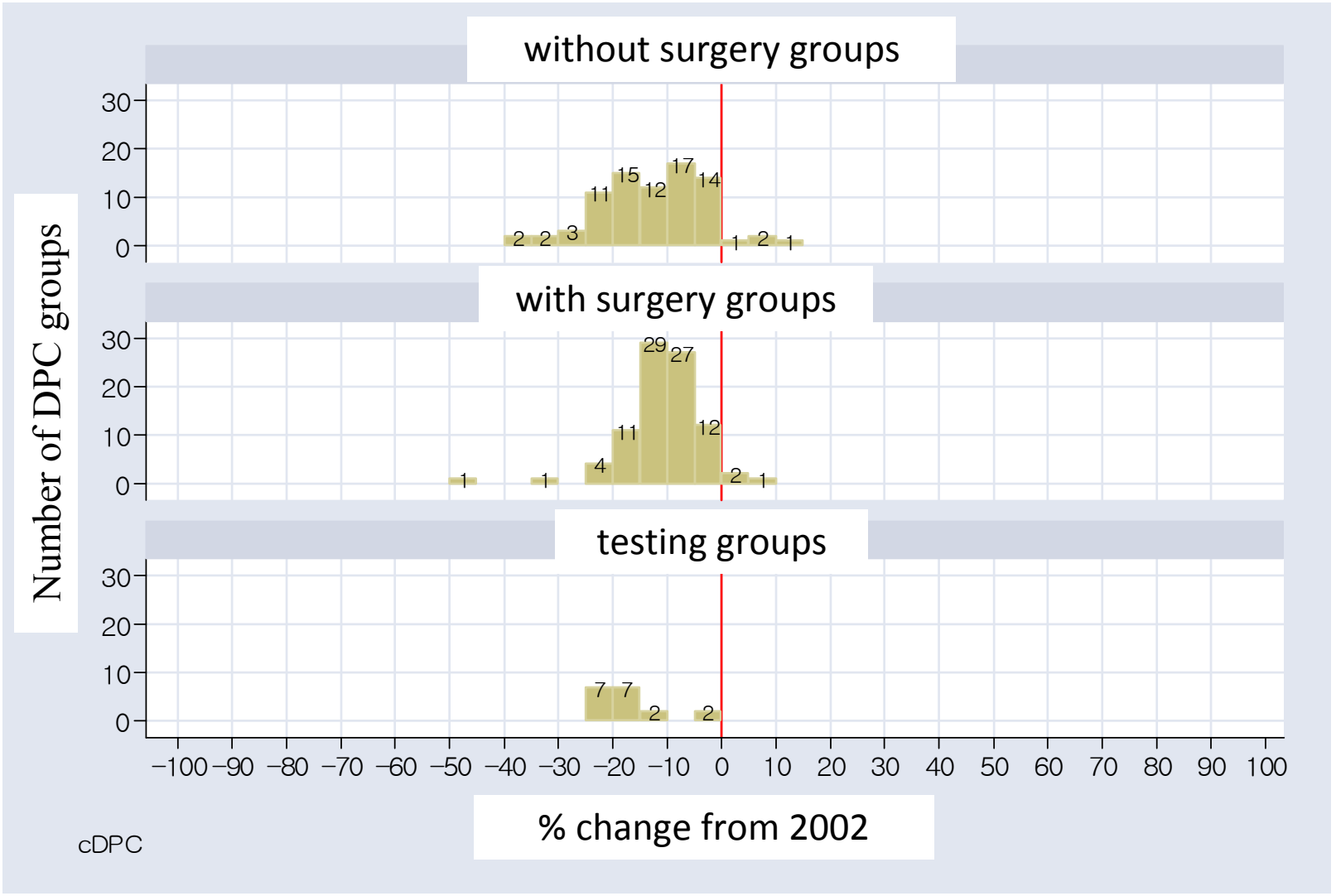
- No incentive to reduce the length of stay because the payment was per diem bases
- The number of procedures under the flat rate payment would reduce, however, those under fee for service would not.
- More influential on DPC groups without surgery because most of the procedures were under the flat rate payment

Average Length of Stay

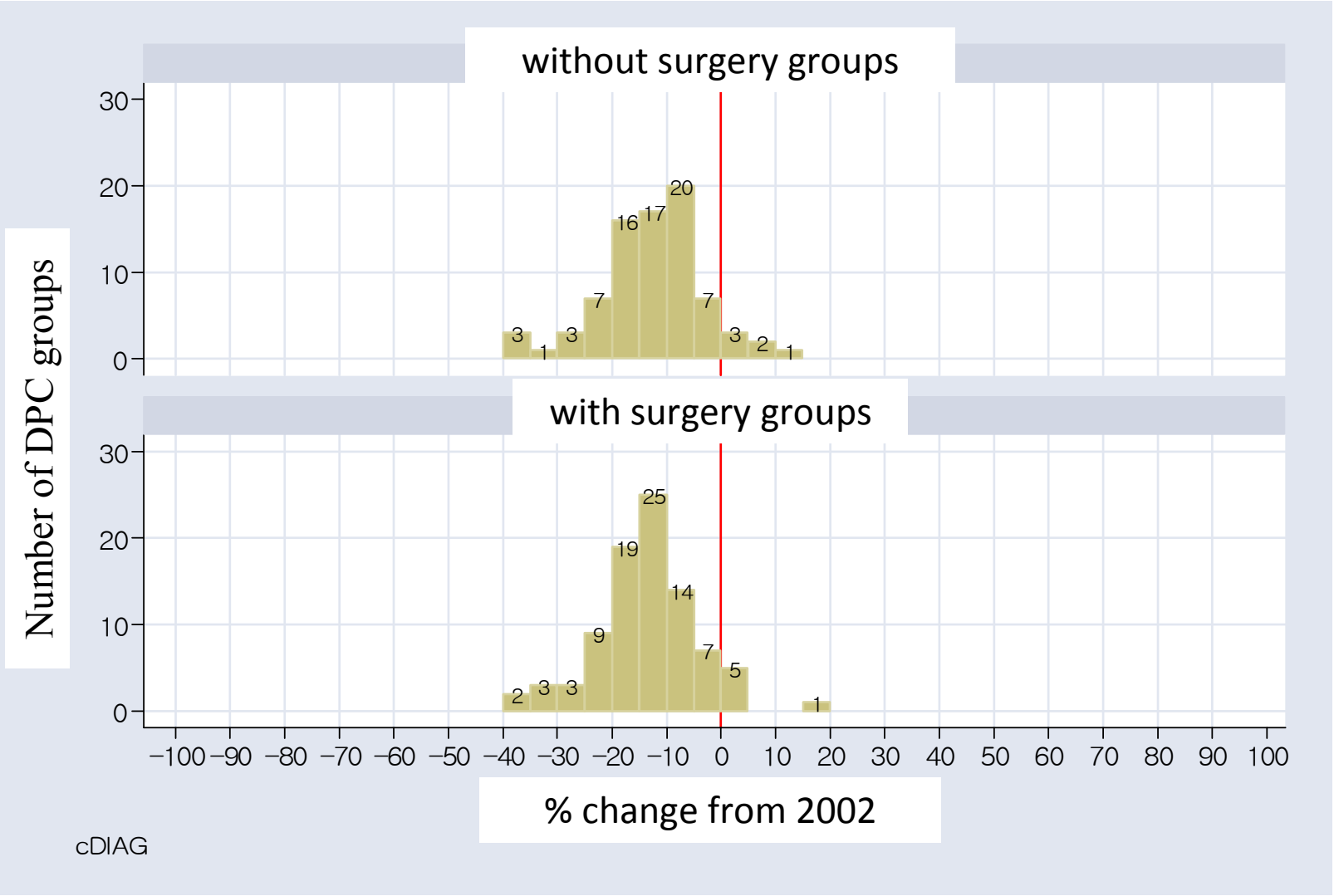
Procedures under Fee For Service Payment



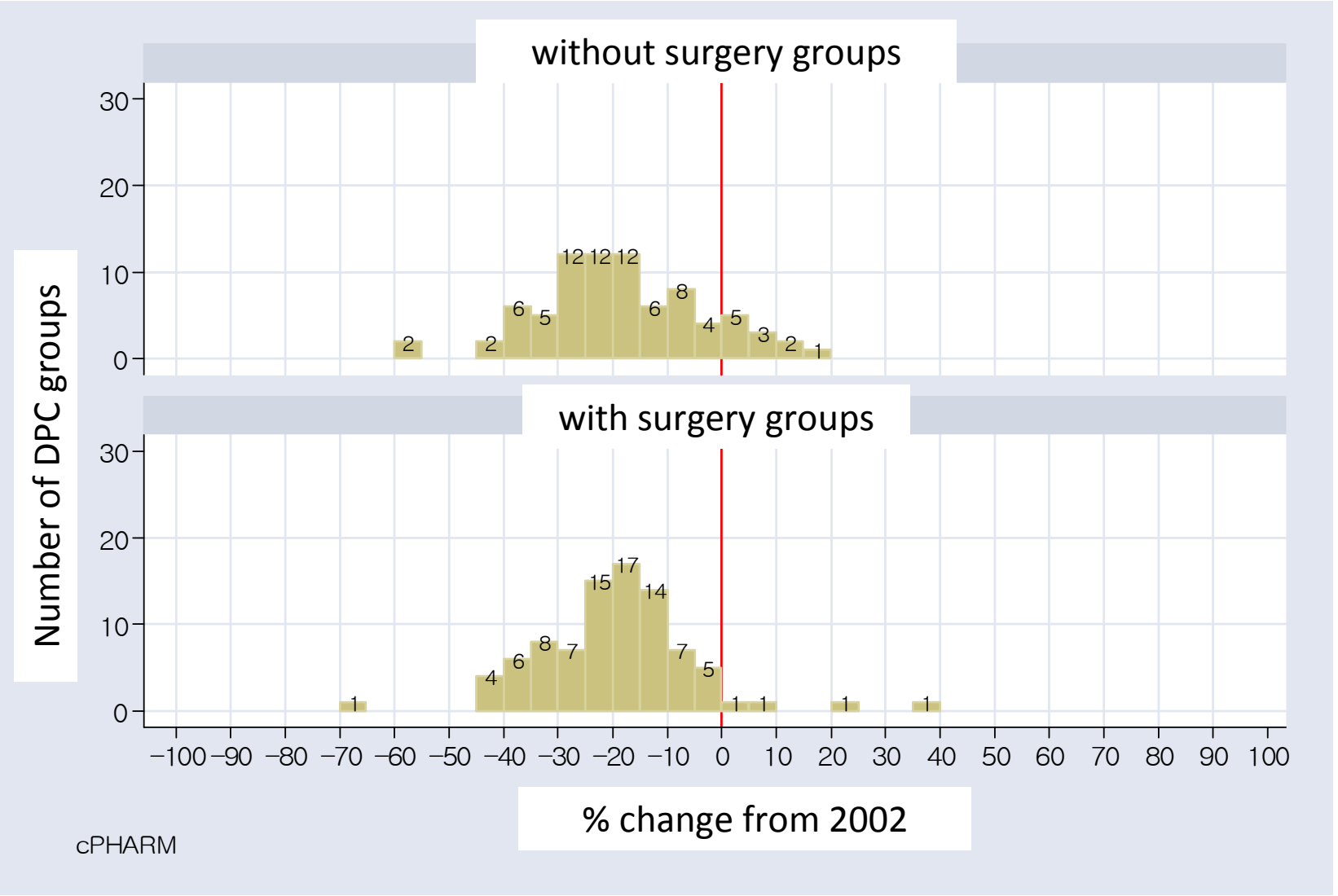
Procedures under Flat Rate Payment



Procedures of Diagnostic Testing and Imaging



Procedures of Medication



Findings

- Average length of stay was reduced in most DPC groups.

  Because,
  - Clear comparison among DPC hospitals
  - Improve bed turnover rate in order to do more surgeries
  - Standardization of the inpatient care, such as clinical pathway method
  - Some procedures, such as diagnostic imaging before surgery, were performed before hospitalization
- The number of procedures under the flat rate payment reduced, however, those under fee for service did not.
  - consistent with economic incentives under DPC payment
- More influential on DPC groups without surgery compared to groups with surgery
  - consistent with economic incentives under DPC payment
- More influential on medication compared to diagnostic procedures
  - many alternatives (generics, inexpensive drugs) for medication

Implications

- Japanese DPC based payment system contributed to clear understanding of procedures for acute inpatient care.
- Flat rate payment system reduced procedures and moved to lower cost medicines.
- However, outpatient services, not just inpatient procedures, must be investigated in order to evaluate the whole influence.

Information Infrastructure supporting DPC/PDPS in Japan

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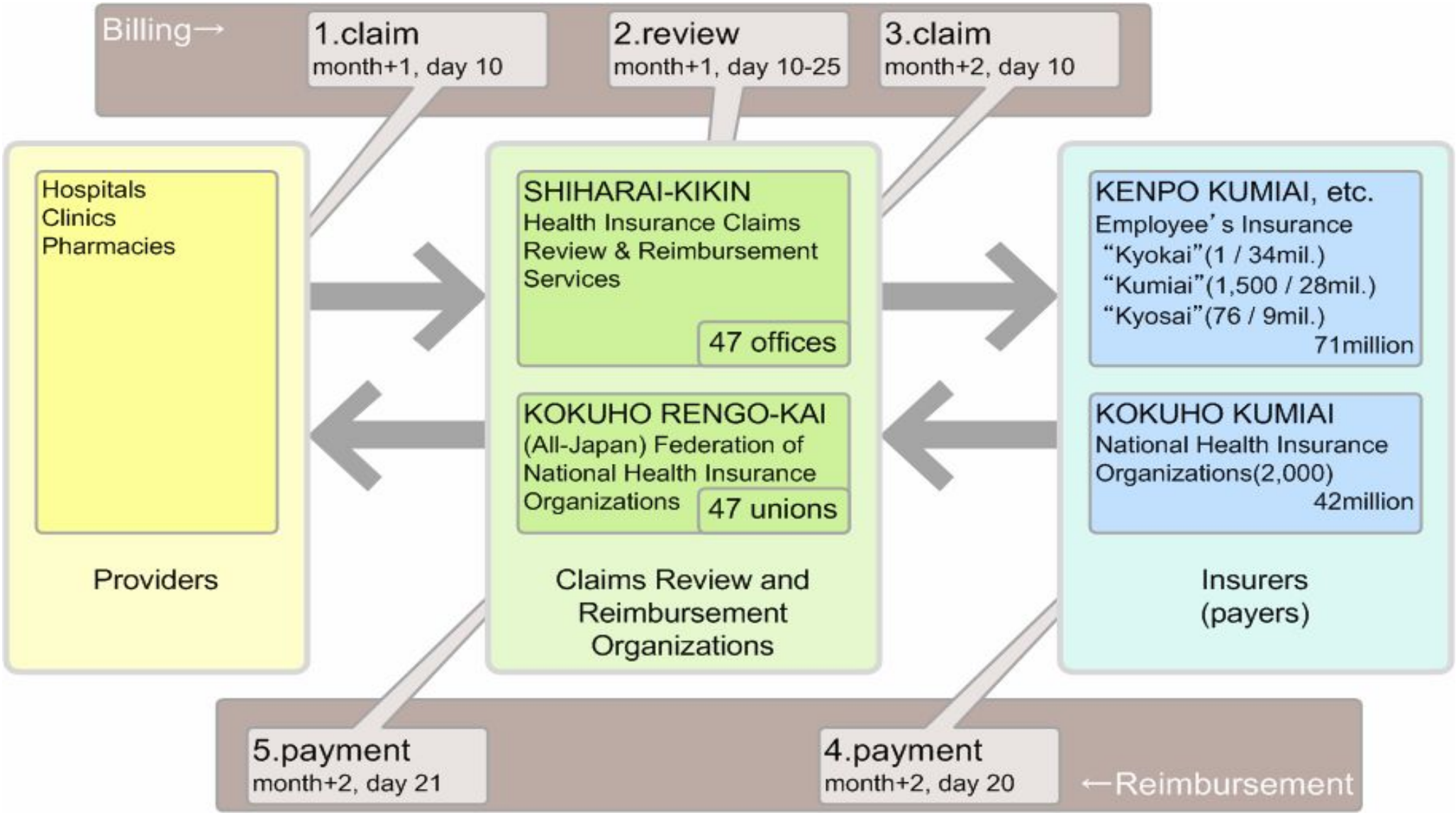
Key terms and abbreviations

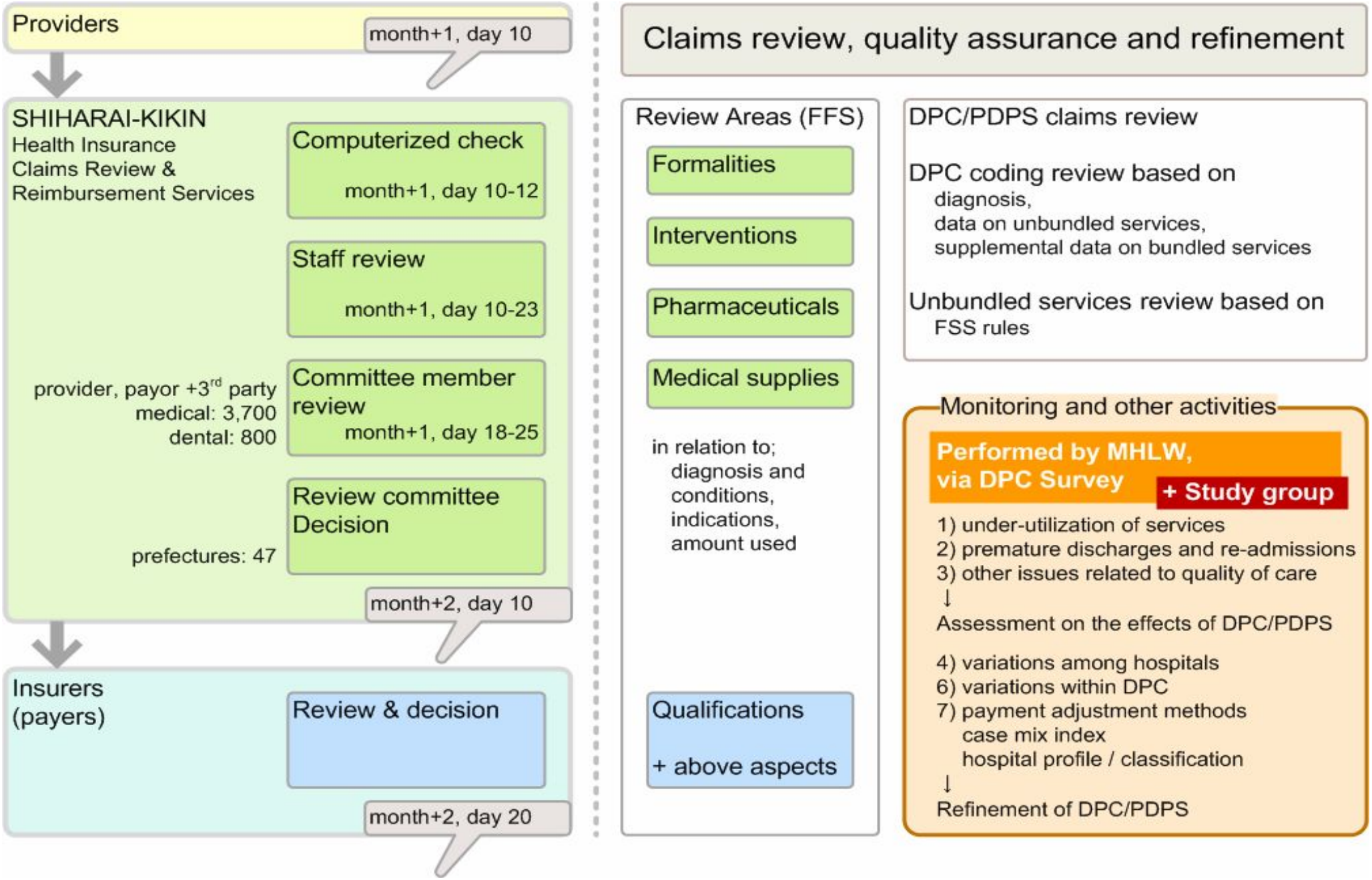
- DPC: Diagnosis Procedure Combination
  - Case mix classification based on ICD10 and clinical interventions
  - 18 MDCs, 507 diagnostic categories, 2,658 payment groups, 1,875(71%) paid by PDPS
- PDPS: Per Diem Payment System
  - Payment method, three-stage fee per day set by LOS (25%, mean, mean+2SD)
  - Unbundled services; Surgery, Anesthesia, Pathology, etc.
  - Bundled services; inpatient stays, diagnostic tests, radiology, pharmaceuticals, supplies
- MHLW: Ministry of Health Labor and Welfare
- "Study group": MHLW funded research group
  - Started in 2001 (2years prior to introduction of DPC/PDPS), currently in 4th term
  - Approx. 1,000 hospitals participate in data collection, 4.7million discharges / 9months

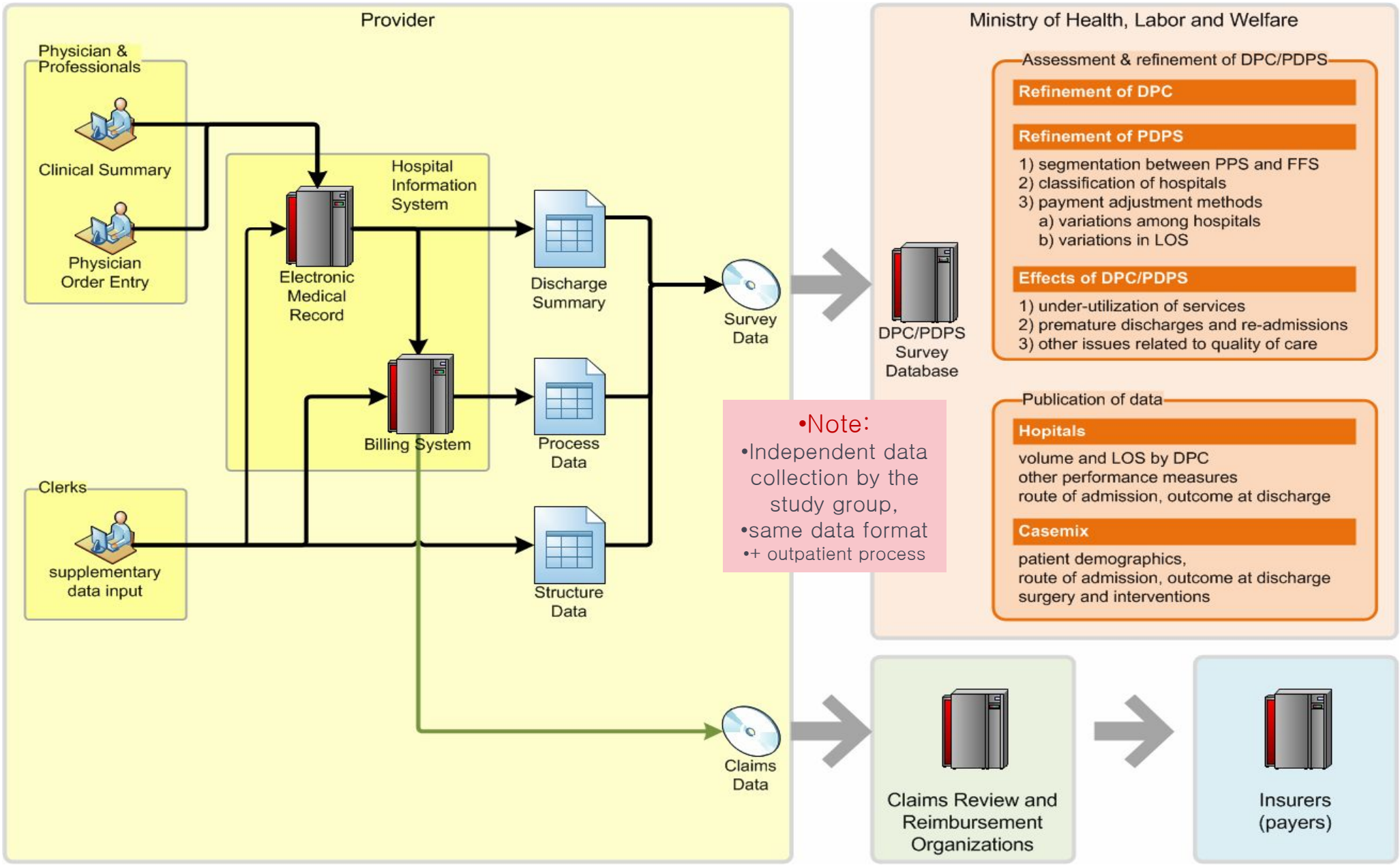
DPC/PDPS: Ecosystem for Acute Hospital Care

- DPC/PDPS is NOT just a payment method
- Intended to build a national information infrastructure for data accumulation and analysis
  - Shortcomings of Japanese electronic claims data
    - data format inherits paper forms, difficulty in transforming data into analysis-friendly format
    - missing temporal information (submission by month, no dates)
  - "DPC Survey" data is used to overcome above issues
- Emphasis on PROCESS of care
  - DPC is designed / refined based on process of care, then grouped by similarity of costs
  - Data analysis focuses on process/variation of care

Background: Claims processing




Providers
month+1, day 10
SHIHARAI-KIKIN
Health Insurance
Claims Review &
Reimbursement Services
Computerized check
month+1, day 10-12
Staff review
month+1, day 10-23
provider, payor +3rd party
medical: 3,700
dental: 800
Committee member review
month+1, day 18-25
Review committee
Decision
prefectures: 47
month+2, day 10
Insurers
(payers)
Review & decision
month+2, day 20
Claims review, quality assurance and refinement
Review Areas (FFS)
Formalities
Interventions
Pharmaceuticals
Medical supplies
in relation to;
diagnosis and
conditions,
indications,
amount used
Qualifications
+ above aspects
DPC/PDPS claims review
DPC coding review based on
diagnosis,
data on unbundled services,
supplemental data on bundled services
Unbundled services review based on
FSS rules
Monitoring and other activities
Performed by MHLW,
via DPC Survey
+ Study group
1) under-utilization of services
2) premature discharges and re-admissions
3) other issues related to quality of care
↓
Assessment on the effects of DPC/PDPS
4) variations among hospitals
6) variations within DPC
7) payment adjustment methods
case mix index
hospital profile / classification
↓
Refinement of DPC/PDPS


Provider
Physician & Professionals
Clinical Summary
Physician Order Entry
Hospital Information System
Electronic Medical Record
Billing System
Discharge Summary
Process Data
Structure Data
Survey Data
Clerks
supplementary data input
Claims Data
Ministry of Health, Labor and Welfare
DPC/PDPS Survey Database
Assessment & refinement of DPC/PDPS
Refinement of DPC
Refinement of PDPS
1) segmentation between PPS and FFS
2) classification of hospitals
3) payment adjustment methods
a) variations among hospitals
b) variations in LOS
Effects of DPC/PDPS
1) under-utilization of services
2) premature discharges and re-admissions
3) other issues related to quality of care
Publication of data
Hopitals
volume and LOS by DPC
other performance measures
route of admission, outcome at discharge
Casemix
patient demographics,
route of admission, outcome at discharge
surgery and interventions
•Note:
•Independent data collection by the study group,
•same data format
•+ outpatient process
Claims Review and Reimbursement Organizations
Insurers (payers)

DPC Survey: Hospitals and Discharges

year		period /months	Hospitals			Discharges (in millions)			Named data
			DPC paid	FFS paid	total	submi-ssion	analy-zed	Annual (12mo.)	
H14	2002	Jul-Oct / 4	82	0	82	0.30	0.30	0.89	DPC only
H15	2003	Jul-Oct / 4	82	91	173	0.49	0.45	1.35	DPC only
H16	2004	Jul-Oct / 4	164	51	215	0.59	0.56	1.68	DPC only
H17	2005	Jul-Oct / 4	164	228	392	1.09	1.00	3.00	DPC only
H18	2006	Jul-Dec / 6	360	371	731	2.79	2.58	5.16	DPC only
H19	2007	Jul-Dec / 6	360	1,068	1,428	4.30	3.94	7.88	all
H20	2008	Jul-Dec / 6	718	841	1,559	4.60	4.23	8.46	all
H21	2009	Jul-Dec / 6	1,282	325	1,607	4.87	4.38	8.76	all
H22	2010	Jul-Mar / 9	1,390	258	1,648	7.32	6.77	9.03	all

Percentage to all general Hospitals (2010)				total
Hospitals	17.9%	3.6%	21.5%	(7,714)
Beds	50.4%	4.7%	55.1%	
Number of beds	45.8	4.3	50.1	(90.9)

•DPC survey covers 62% of discharges from general hospitals (14.5million / 2010)

DPC Survey: Data collection

- Discharge SUMMARY: “FF1(File Format 1)”
  - basis for coding DPC classification
- Data on clinical PROCESS: “E/F file”
  - basis for pricing PDPS fees by DPC
    - elaborate list of services provided to inpatient
    - comparable to FFS claims, but uses different file format
- Data on hospital STRUCTUERE: “FF3(File Format 3)”
  - basis for classifying hospitals and used in payment adjustment
    - qualifications on staffing, facility and management processes

•Note:
•Patient ID is not
•nationally standardized.
•Data is linked by
•hospital-proprietary ID’s.

DPC Survey: Discharge Summary (FF1) Items

- Hospital: ID
- Patient: ID, sex, birthday, zip code
- Admission: dates, referral, emergency/ambulance, death within 24 hours of admission
- Diagnosis: text, ICD10 codes
- Surgery: dates, procedure names/codes
- Other clinical data:
  Pregnancy, birth weight, height, weight, smoking, clinical staging/severity (UICC-TNM, etc.)

DPC Survey: Process Data (E/F files)

レセプトデータダウンロード・データ仕様

Eファイル＜診療明細情報＞

DE 番号	必須 項目	データエレメント Data Element (DE)	桁数	累積 桁数	前ゼロ の必須	説　　明
E-1	○	施設コード	9	9	必須	都道府県番号＋医療機関コード　間には区切りを入れない。
E-2	○	データ識別番号	10	19	必須	複数回入退院しても共通の番号。様式１と一致する。
E-3	○	退院年月日(西暦)	8	27		（共通）yyyymmdd　1996 年 1 月 1 日の場合、19960101
E-4	○	入院年月日(西暦)	8	35		外来症例や未確定時は 00000000 とする
E-5	○	データ区分	2	37	必須	レセプト電算処理システムの診療識別に準ずる（※）
E-6	○	順序番号	4	41	必須	データ区分別に、診療行為明細を１からの連続した番号で付与する。
E-7	○	病院点数マスタコード	12	53		12 桁ない場合は、左詰め。
E-8	○	レセプト電算処理システム用コード	9	62		レセプト電算処理システム用コード無い場合、材料 777770000 とする。
E-9	▲	解釈番号（基本）	8	70		診療報酬点数上の解釈番号 K600 等
E-10	○	診療行為名称	254	324		診療行為の名称（最大漢字 127 文字）。満たない場合は、左詰め。
E-11	○	行為点数	8	332	必須	診療行為（剤単位）での点数計。手技料＋E12 行為薬剤料＋E13 行為材料料
E-12	○	行為薬剤料	8	340	必須	診療行為内の薬剤点数計(再掲)。薬剤料のみ。
E-13	○	行為材料料	8	348	必須	診療行為内の材料点数計(再掲)。材料料のみ。材料点数の分離が不可能な場合は、薬剤点数計に集計する。
E-14	○	円・点区分	1	349		1:円単位　　0:点単位
E-15	○	行為回数	3	352	必須	診療行為の実施回数（同日の同一行為は１とカウント）
E-16	○	保険者番号	8	360		コードが 4 桁あるいは 6 桁の場合は、前に各々4 桁、2 桁のスペースを挿入。
E-17	△	レセプト種別コード	4	364		レセプト種別コード（医科）。1111～1999
E-18	○	実施年月日	8	372		yyyymmdd(西暦年 4 桁)1996 年 1 月 1 日の場合、19960101
E-19	○	レセプト科区分	2	374	必須	レセプト電算処理システムの診療科区分を入力。
E-20	○	診療科区分	3	377	必須	医師の所属する診療科。厚生労働省様式１のコードを使用。
E-21	△	医師コード	10	387		病院独自コード。左詰め。
E-22	△	病棟コード	10	397		病院独自コード。但し、一般、一般以外の区別が可能なこと。左詰め。
E-23	○	病棟区分	1	398		1:一般以外　0:一般　2:入院中の外来診療
E-24	○	入外区分	1	399		1:外来　0:入院
E-25	○	施設タイプ	3	402		データ挿入不用。タブでフィールドのみ作成。

注1)　薬剤だけとれる検査の時は，E-8に薬剤のコードを入れ，E-11とE-12が同じ点数となる
注2)　加算点数はコメント情報扱い（独立レコードとして分離できない場合）
注3)　外泊の場合，1日あたり1レコードとし，E-8にレセプト電算処理システムの外泊コードを入れ，E-11の点数は外泊率加算後の点数
（※）　11，13，14，21，22，23，24，26，27，31，32，33，40，50，54，60，70，80，90，92，97のいずれかが入る

Fファイル＜行為明細情報＞

DE 番号	必須 項目	データエレメント Data Element (DE)	桁数	累積 桁数	前ゼロ の必須	説　　明
F-1	○	施設コード	9	9	必須	都道府県番号＋医療機関コード　間には区切りを入れない。
F-2	○	データ識別番号	10	19	必須	複数回入退院しても共通の番号。様式１と一致する。
F-3	○	退院年月日(西暦)	8	27		（共通）yyyymmdd　1996 年 1 月 1 日の場合、19960101
F-4	○	入院年月日(西暦)	8	35		外来症例や未確定時は 00000000 とする
F-5	○	データ区分	2	37	必須	レセプト電算処理システムの診療識別に準ずる（※）
F-6	○	順序番号	4	41	必須	データ区分別に、診療行為明細を１からの連続した番号で付与する。
F-7	○	行為明細番号	3	44	必須	診療明細情報の順序番号に対応する行為明細を、1 から付番する。001～999
F-8	○	病院点数マスタコード	12	56		12 桁ない場合は、左詰め。
F-9	○	レセプト電算処理システム用コード	9	65		F ファイルにはコメントデータを残す（コード 810000000 使用）。E には不用。
F-10	▲	解釈番号（基本）	8	73		診療報酬点数上の解釈番号 K600 等
F-11	○	診療明細名称	254	327		診療明細の名称（最大漢字 127 文字）。満たない場合は、左詰め。
F-12	○	使用量	11	338	必須	小数点以上 7 桁、小数点以下 3 桁にて設定（小数点は『．』にて設定する）。　0.002ml の場合、0000000.002。行為コードでレセプト電算処理システム用コードの単位が設定されていない場合は 0000000.000 を設定。
F-13	○	基準単位	3	341		診療行為も含めてレセプト電算処理システム用特定器材コードを使用。無い場合は'000'。
F-14	○	行為明細点数	8	349	必須	行為の点数計
F-15	○	行為明細薬剤料	12	361	必須	行為の薬剤料（薬価×使用量）。
F-16	○	行為明細材料料	12	373	必須	行為の材料料（購入価または公示価×数量）。材料点数の分離が不可能な場合は、薬剤点数計に集計する。
F-17	○	円・点区分	1	374		1:円単位　　0:点単位
F-18	○	出来高実績点数	8	382	必須	出来高算定として請求すべき点数。
F-19	○	出来高・包括フラグ	1	383	必須	診療行為はレセ電算マスタの DPC 適用区分をセットする。　退院時処方は１をセットする。

注1)　点数のないものは，円表示とする
注2)　行為明細情報の点数は，丸め処理をする前のもの
注3)　外泊の場合，1日あたり1レコードとし，F-9にレセ電算の外泊コードを入れ，F-14の点数はE-11と同一
注4)　F-14，F-15，F-16にはいずれか一つに点数が入る
（※）　11，13，14，21，22，23，24，26，27，31，32，33，40，50，54，60，70，80，90，92，97のいずれかが入る

DPC Survey: Publication of results

- Publicly available via website
  - 2010 Survey results (in Japanese)
    http://www.mhlw.go.jp/stf/shingi/2r9852000001u23a.html
- Focuses on
  - Case group summary: for DPC payment categories
  - Oncology regimens: combination of chemotherapeutic drugs
    - costly-drugs bundled in PDPS, by DPC6(diagnosis)
  - Hospital performance: case mix, volume and LOS
    - by MDC, DPC6(diagnosis), DPC6+interventions
    - route of admission (including emergency, ambulance) / discharge
    - case mix indexes, outcome at discharge, etc.
  - Readmission / transfers to special inpatient wards
    - monitoring of premature discharges, repeated admissions

DPC

060035xx99x5xx	大腸（上行結腸からS状結腸）の悪性腫瘍　手術なし　手術・処置等２　５あり				
MDC06	消化器系疾患、肝臓・胆道・膵臓疾患	当該 MDC に含まれる DPC の数	451	当該 MDC の症例数	1008467

volume

DPC 対象病院			DPC 準備病院			全体		
件数	MDC に対して(%)	全症例に対して(%)	件数	MDC に対して(%)	全症例に対して(%)	件数	MDC に対して(%)	全症例に対して(%)
15815	1.76	0.41	2059	1.85	0.47	17874	1.77	0.42

sex

性別											
男性						女性					
DPC 対象病院		DPC 準備病院		全体		DPC 対象病院		DPC 準備病院		全体	
件数	%	件数	%	件数	%	件数	%	件数	%	件数	%
8418	53.23	1214	58.96	9632	53.89	7397	46.77	845	41.04	8242	46.11

age

年齢分布

年齢	DPC 対象病院		DPC 準備病院		全体		年齢	DPC 対象病院		DPC 準備病院		全体	
	件数	%	件数	%	件数	%		件数	%	件数	%	件数	%
0～2 歳							21～40 歳	394	2.49	39	1.89	433	2.42
3～5 歳							41～60 歳	4253	26.89	555	26.95	4808	26.90
6～15 歳	1	0.01			1	0.01	61～79 歳	10385	65.67	1346	65.37	11731	65.63
16～20 歳	1	0.01			1	0.01	80 歳以上	781	4.94	119	5.78	900	5.04

admission

入院経路

	DPC 対象病院		DPC 準備病院		全体	
	件数	%	件数	%	件数	%
他院よりの紹介	4252	26.89	454	22.05	4706	26.33
自院の外来からの入院	14308	90.47	1899	92.23	16207	90.67
救急車による搬送	31	0.20	2	0.10	33	0.18
緊急入院	325	2.06	30	1.46	355	1.99

outcome

退院時転帰

治癒			軽快			寛解			不変		
DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体
32	1	33	4350	350	4700	662	38	700	10427	1617	12044
増悪			死亡(医療資源病名)			死亡(医療資源病名以外)			その他		
DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体	DPC対象病院	DPC準備病院	全体
7	1	8	27	4	31	3	1	4	307	47	354

LOS

在院日数

在院日数集計値	DPC 対象病院	DPC 準備病院	全体	在院日数集計値	DPC 対象病院	DPC 準備病院	全体
平均値	4.73	4.28	4.68	25 パーセンタイル値	3.00	3.00	3.00
最小値	2	2	2	50 パーセンタイル値	4.00	3.00	4.00
最大値	152	75	152	75 パーセンタイル値	5.00	4.00	5.00
変動係数	1.09	1.11	1.09	90 パーセンタイル値	6.00	5.00	6.00

DPC

060035xx99x5xx	大腸（上行結腸からS状結腸）の悪性腫瘍　手術なし　手術・処置等２　５あり				
MDC06	消化器系疾患、肝臓・胆道・膵臓疾患	当該 MDC に含まれる DPC の数	451	当該 MDC の症例数	1008467

main Dx and CC

医療資源を最も投入した傷病 ICD10									入院時併存症及び入院後発症疾患 ICD10								
DPC 対象病院			DPC 準備病院			全体			DPC 対象病院			DPC 準備病院			全体		
ICD10	件数	%	ICD10	件数	%	ICD10	件数	%	ICD10	件数	%	ICD10	件数	%	ICD10	件数	%
C187	6334	40.05	C187	897	43.56	C187	7231	40.46	C787	6410	12.53	C787	868	20.77	C787	7278	13.15
C182	3817	24.14	C182	504	24.48	C182	4321	24.17	R11	4526	8.85	C780	397	9.50	R11	4898	8.85
C184	1732	10.95	C186	189	9.18	C184	1900	10.63	I10	3407	6.66	R11	372	8.90	I10	3733	6.75
C180	1537	9.72	C184	168	8.16	C180	1703	9.53	K590	3325	6.50	I10	326	7.80	K590	3412	6.17
C186	1400	8.85	C180	166	8.06	C186	1589	8.89	C780	2844	5.56	C786	257	6.15	C780	3241	5.86
C189	726	4.59	C189	106	5.15	C189	832	4.65	K259	2066	4.04	E119	150	3.59	C786	2098	3.79
C181	196	1.24	C183	12	0.58	C181	207	1.16	C786	1841	3.60	K210	116	2.78	K259	2095	3.79
C188	32	0.20	C181	11	0.53	C188	33	0.18	G470	1667	3.26	C772	104	2.49	G470	1733	3.13
C183	15	0.09	C775	3	0.15	C183	27	0.15	K210	1606	3.14	K590	87	2.08	K210	1722	3.11
C785	15	0.09	C185	2	0.10	C785	15	0.08	R522	1118	2.19	G629	70	1.67	E119	1238	2.24

Surgery

手術								
DPC 対象病院			DPC 準備病院			全体		
K コード	件数	%	K コード	件数	%	K コード	件数	%

additional interventions

主要処置等												
人工呼吸						人工腎臓					
DPC 対象病院		DPC 準備病院		全体		DPC 対象病院		DPC 準備病院		全体	
件数	%	件数	%	件数	%	件数	%	件数	%	件数	%
3	0.02	2	0.10	5	0.03	17	0.11	1	0.05	18	0.10
中心静脈注射						輸血					
DPC 対象病院		DPC 準備病院		全体		DPC 対象病院		DPC 準備病院		全体	
件数	%	件数	%	件数	%	件数	%	件数	%	件数	%
1451	9.17	100	4.86	1551	8.68						

Case group summary

Colon cancer(060035) MHLW DPC Survey results(2009)

no surgery(99)、with chemotherapy(5/4/3)

Surgery and Procedures(2)	DPC
5 : bevacizumab	060035xx99x5xx
4 : FOLFOX	060035xx99x4xx
3 : other chemotherapy, without radiation therapy	060035xx99x3xx

Statistics	5(p.123)	4(p.192)	3(p.253)	Total
Number of discharges	17,874	8,432	5,530	31,836
Patients over 60	70.67%	77.80%	75.25%	
patients over 80	5.04%	9.16%	10.78%	
Male	53.89%	57.28%	58.77%	
Mortality at discharge	0.17%	0.45%	1.56%	
LOS(mean)	4.68	4.84	6.19	
LOS percentiles 25/50/75	3 / 4 /5	3 / 4 / 4	3 / 4 / 5	
LOS percentiles 90	6	6	11	

bevacizumab use
Under 60 : 62%
Over 60 : 54%
(Over 80 : 40%)

060035	大腸（上行結腸からS状結腸）の悪性腫瘍

使用薬剤数	57	レジメン数	243	症例数	38372	施設数	1341

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
症例数	34853	22323	19336	11764	937	898	738	264	171	118	94	88	77	65	44	40	38	30	28	26	24	18	17	16	15	13	12	11	11	9
↑%	90.8%	58.2%	50.4%	30.7%	2.4%	2.3%	1.9%	0.7%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
使用レジメン数	98	65	59	49	25	28	32	23	34	17	14	11	20	17	10	5	8	4	10	13	6	3	3	3	3	7	7	6	9	6
↑%	40.3%	26.7%	24.3%	20.2%	10.3%	11.5%	13.2%	9.5%	14.0%	7.0%	5.8%	4.5%	8.2%	7.0%	4.1%	2.1%	3.3%	1.6%	4.1%	5.3%	2.5%	1.2%	1.2%	1.2%	1.2%	2.9%	2.9%	2.5%	3.7%	2.5%
施設数	1269	1212	1055	953	457	471	407	101	100	101	36	68	32	61	33	38	21	24	27	22	13	12	13	11	11	8	9	6	11	8
↑%	94.6%	90.4%	78.7%	71.1%	34.1%	35.1%	30.4%	7.5%	7.5%	7.5%	2.7%	5.1%	2.4%	4.5%	2.5%	2.8%	1.6%	1.8%	2.0%	1.6%	1.0%	0.9%	1.0%	0.8%	0.8%	0.6%	0.7%	0.4%	0.8%	0.6%

順位	症例数	←割合	←累積	施設数	←割合	在院日数平均	レジメン
1	10876	28.3%	28.3%	1069	79.7%	8.7	オキサリプラチン(2)+フルオロウラシル(1)
2	10440	27.2%	55.6%	926	69.1%	6.3	オキサリプラチン(2)+フルオロウラシル(1)+ベバシズマブ(3)
3	7047	18.4%	73.9%	709	52.9%	5.2	フルオロウラシル(1)+ベバシズマブ(3)+塩酸イリノテカン(4)
4	4075	10.6%	84.5%	645	48.1%	6.1	フルオロウラシル(1)+塩酸イリノテカン(4)
5	1089	2.8%	87.4%	207	15.4%	4.4	フルオロウラシル(1)+ベバシズマブ(3)
6	914	2.4%	89.8%	263	19.6%	9.4	フルオロウラシル(1)
7	795	2.1%	91.8%	434	32.4%	32.2	テガフール・ウラシル配合(6)
8	405	1.1%	92.9%	280	20.9%	31.6	テガフール・ギメラシル・オテラシルカリウム配合(7)
9	318	0.8%	93.7%	195	14.5%	29.0	カペシタビン(5)
10	311	0.8%	94.5%	185	13.8%	10.6	オキサリプラチン(2)+カペシタビン(5)+ベバシズマブ(3)
11	249	0.6%	95.2%	178	13.3%	18.4	オキサリプラチン(2)+カペシタビン(5)
12	191	0.5%	95.7%	74	5.5%	8.1	塩酸イリノテカン(4)
13	155	0.4%	96.1%	76	5.7%	15.8	テガフール・ギメラシル・オテラシルカリウム配合(7)+塩酸イリノテカン(4)
14	84	0.2%	96.3%	72	5.4%	3.9	オキサリプラチン(2)+ベバシズマブ(3)
15	65	0.2%	96.5%	60	4.5%	27.8	ビカルタミド(10)
16	62	0.2%	96.6%	52	3.9%	4.8	オキサリプラチン(2)
17	57	0.1%	96.8%	50	3.7%	30.1	酢酸クロルマジノン(12)
18	51	0.1%	96.9%	31	2.3%	27.8	かわらたけ多糖体製剤(8)+テガフール・ウラシル配合(6)
19	51	0.1%	97.0%	17	1.3%	6.9	かわらたけ多糖体製剤(8)+フルオロウラシル(1)+ベバシズマブ(3)+塩酸イリノテカン(4)
20	47	0.1%	97.2%	10	0.7%	6.3	塩酸ゲムシタビン(11)
21	46	0.1%	97.3%	30	2.2%	6.5	ベバシズマブ(3)+塩酸イリノテカン(4)
22	36	0.1%	97.4%	16	1.2%	9.1	オキサリプラチン(2)+かわらたけ多糖体製剤(8)+フルオロウラシル(1)+ベバシズマブ(3)
23	35	0.1%	97.5%	28	2.1%	22.2	シスプラチン(9)
24	35	0.1%	97.6%	20	1.5%	13.3	テガフール・ギメラシル・オテラシルカリウム配合(7)+ベバシズマブ(3)+塩酸イリノテカン(4)
25	35	0.1%	97.6%	12	0.9%	8.0	オキサリプラチン(2)+かわらたけ多糖体製剤(8)+フルオロウラシル(1)
26	34	0.1%	97.7%	19	1.4%	8.2	オキサリプラチン(2)+テガフール・ギメラシル・オテラシルカリウム配合(7)+ベバシズマブ(3)
27	32	0.1%	97.8%	31	2.3%	27.9	アナストロゾール(16)
28	26	0.1%	97.9%	12	0.9%	4.5	かわらたけ多糖体製剤(8)+フルオロウラシル(1)+塩酸イリノテカン(4)
29	25	0.1%	98.0%	13	1.0%	28.3	シスプラチン(9)+塩酸ゲムシタビン(11)
30	25	0.1%	98.0%	11	0.8%	21.8	マイトマイシンC(13)
残	761	2.0%	100.0%	－	－		

FOLFOX→56%

FOLFIRI→29%

.85%

.80% of hospitals

.53% of hospitals

.Reasons for not using standard regimens?

Chemotherapy regimens for colon cancer MHLW DPC Survey(2009)

Hospital performance:
Volume and LOS

	060020													
	Stomach cancer by types of surgery													
	Volume							LOS						
Hospitals	99	97	97 (輸血以外の再掲)	01	02	03	04	99	97	97 (輸血以外の再掲)	01	02	03	04
昭和大学病院	72	26	13	–	27	–	–	16.1	30.4	31.5	–	29.4	–	–
東邦大学医療センター大森病院	59	17	11	11	22	12	27	17.9	43.4	41.2	35.3	30.0	14.2	10.3
日本大学医学部附属板橋病院	57	14	–	13	14	15	28	11.8	46.4	–	24.1	16.3	37.9	10.6
帝京大学医学部附属病院	57	18	14	17	21	19	–	16.9	31.1	22.1	47.0	33.5	17.7	–
杏林大学医学部付属病院	54	21	–	–	20	21	34	11.5	35.9	–	–	20.1	26.0	8.9
国立がんセンター中央病院	251	56	36	48	151	32	175	9.2	21.1	22.6	26.4	17.5	21.6	7.2
東京医科歯科大学医学部附属病院	33	14	11	–	35	12	17	9.3	13.3	11.5	–	17.8	12.2	7.9
東京大学医学部附属病院	107	42	30	31	36	21	55	11.6	25.5	27.7	22.9	20.4	12.5	9.1
公立大学法人横浜市立大学附属病院	40	11	–	22	18	–	24	5.8	35.4	–	19.0	19.5	–	8.1
北里大学病院	20	–	–	–	–	–	–	6.5	–	–	–	–	–	–
東海大学医学部付属病院	50	27	11	18	32	10	36	11.8	16.2	20.4	22.3	20.1	12.3	6.6
聖マリアンナ医科大学病院	69	21	–	–	28	26	12	9.2	26.9	–	–	21.4	19.0	11.7

DPC 2008 classifications for surgery→

99 no surgery

97 misc. surgery

01 total resection
02 partial resection
03 exploratory laparotomy
04 EMR, ESD

Contribution by the study group

- Research and Development of
  - DPC classification
  - Solutions for problematic areas in PDPS fee setting
    - appraisal of hospital variations and functionality, intensity of care
    - variations in LOS, use of costly drugs
  - Data analysis methodology, reporting of data
  - Collection and analysis of outpatient data
  - Other applied use of DPC data
    - Extensions to clinical studies and registries
    - Geographic studies
      - provider distribution and accessibility, contribution to community, regional healthcare planning
- Education sessions for hospitals, local authorities

•Study group is needed in absence of a unified payer / claims operator to collaborate with MHLW

DPC/PDPS for optimization in NHI
(in current Japanese health care context)

- Pursuit in prospective payment
  - containment of costs through bundling of healthcare fees
  - monitoring of readmissions and other adverse events

  … may result in suboptimization of acute hospital care costs

- Approaches to achieve total optimization
  - Management of acute hospital care via DPC/PDPS
    - accumulate explicit knowledge on case mix, volume and providers
    - calculate total budget related to DPC/PDPS providers (acute care)
    - manage geographic distribution and accessibility
  - Differentiation/segmentation of post-acute care
    - expand DPC classification to categorize services (including outpatient services)

    →extend management over non-acute care settings

Keys to success

•Data and case mix classification are the key elements.

•PPS is one tool for cost containment in reimbursement, but its success depends largely on outlying activities.

- Rich process data is vital
  - Enables direct estimation of service volume, and hence, costs
- Bundled services
  - Maintain uniform pricing of pharmaceuticals, supplies
    - Perform market-price surveys to keep adequacy of prices
- Unbundled services
  - Elaborate in doctor-fee (interventions) pricing
    - Helps refining of case mix classifications
    - Always link interventions to person-hours of labor
      → ceiling for growth in practice volume
- Dialogue between providers, payers, patients
  - Construct and mobilize “value-chain” in healthcare

DPC/PDPS based payment in Japan

Koichi Benjamin Ishikawa, PhD
National Cancer Center

Takashi Fukuda, PhD.
National Institute of Public Health

Key components of DPC/PDPS

- Patient classification system: DPC
  - DPC = Diagnosis Procedure Combination
- Standardized data collection → DPC Survey database
  - Structure — staffing and functionality “FF3 (File Format 3)”
  - Patient — discharge Summary “FF1 (File Format 1)”
  - Process — FFS-based listing of daily services “E/F files”
  - Fees — DPC/PDPS-based listing of daily charges “D file”
- Payment rules and fees: PDPS
  - PDPS = Per Diem Payment System
  - Unbundled services + Bundled services

FFS-based fees + [(sum of PDPS Fee for day) x (adjustment)]

Patient classification system: DPC

- Diagnosis Procedure Combination
- 14-digit code, by diagnosis, interventions and clinical attributes
  - First 6-digits: Diagnosis (single most resource consuming)
    - Top 2-digits: MDC (Major Diagnosis Category)
      - grouped by organ systems, clinical areas
    - Second 4-digits:
      - grouped by diagnosis(ICD10 codes)
  - Last 8-digits: interventions/tests, CC/severity, etc.
    - main surgery(2), other procedures and tests(1+1), age/birth weight etc.(1), comorbidity and complications(1), severity(1), purpose of admission(1, not currently used)
- Detailed clinical groups → aggregated payment groups
  - tens of thousands 2,658 (ver. 7, 2010)

Changes in number of DPC payment groups

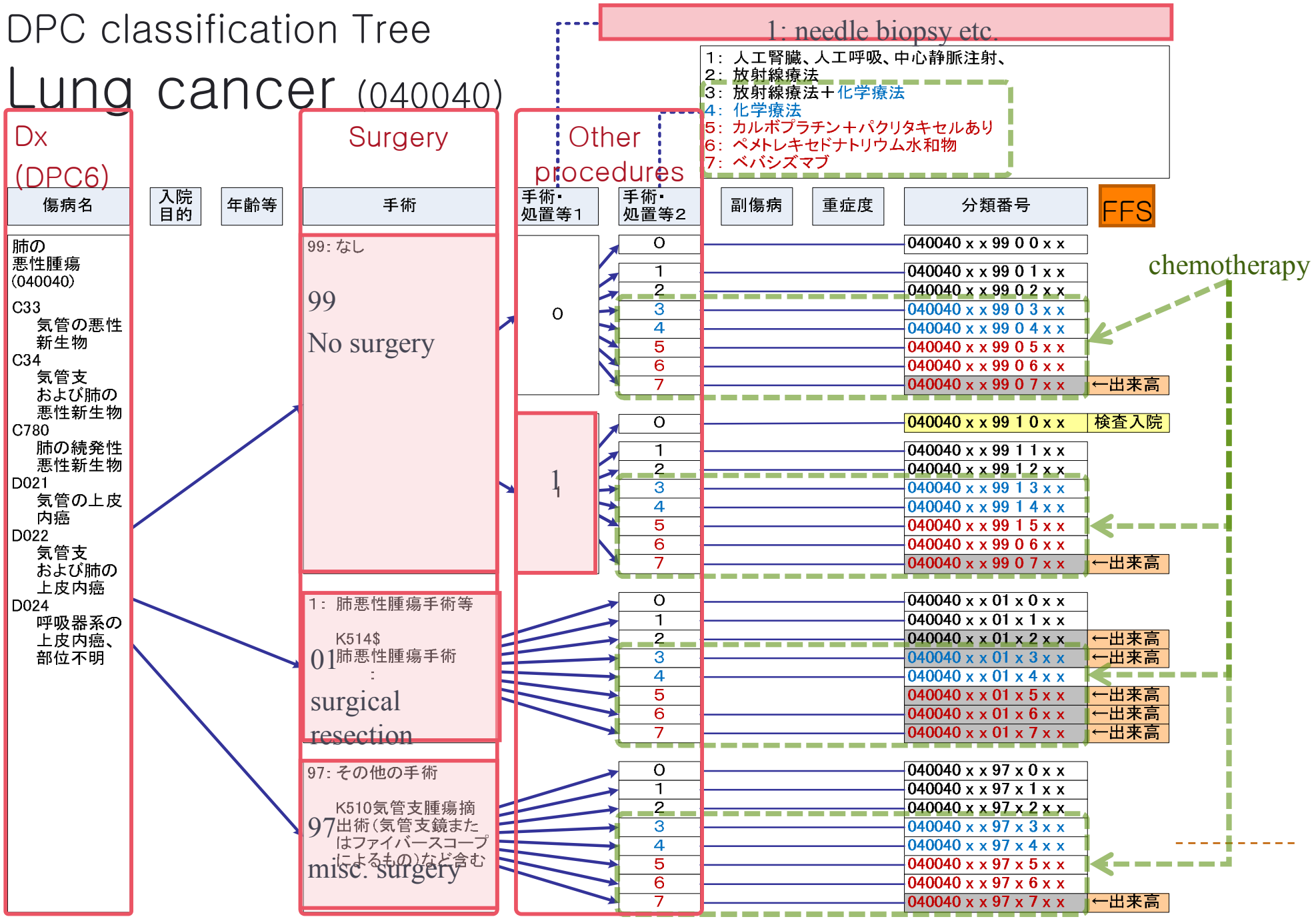
	2010* Ver. 7 / H22	2008 Ver. 6 / H20	2006 Ver. 5 / H18	2004 Ver. 4 / H16	2003 Ver. 3** / H15
DPC14	2,658	2,451	2,347	3,074	2,552
Paid by DPC	1,875 (1,880)	1,572	1,438	1,717	1,860
Paid by FFS	783 (778)	879	909	1,357	692
% of DPC paid groups	70.5% (70.7%)	64.1%	61.3%	55.9%	72.9%
MDC	18	18	16	16	16
DPC6(diagnosis)	507	506	516	591	575

* minor revision in June, initial April version shown in ()

** 2 prior trial versions exist (DRG/PPS based)

DPC classification Tree

Lung cancer (040040)



Payment by DPC/PDPS

- Unbundled services (physician fees)
  - surgery/anesthesia (including pharmaceuticals and supplies)
  - other costly procedures (JPY10,000+)
  - selected tests and services:
    cardiology catheter tests, endoscopy, pathology,
    rehabilitation, psychology and other services by physicians
- Bundled services (hospital fees)
  - fees related to inpatient stay
  - medication fees (including pharmaceuticals) and supplies
  - medical tests (lab, radiology, physiology)
  - minor procedures

roughly 40%

  - (sum of PDPS Fee for day) x (adjustment)
    - three-stage fee per day for DPC14 payment group
      - reduced for prolonged stays
    - adjustment by hospital functionality

040040xx9904xx

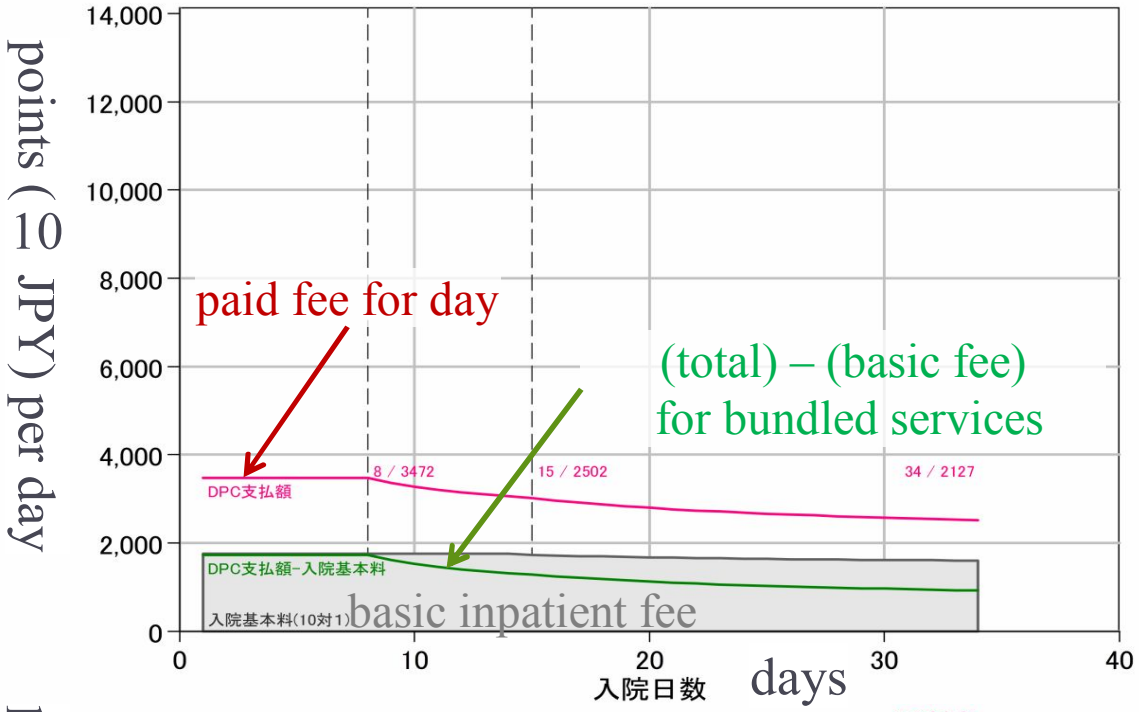
Lung cancer, no surgery, + chemotherapy

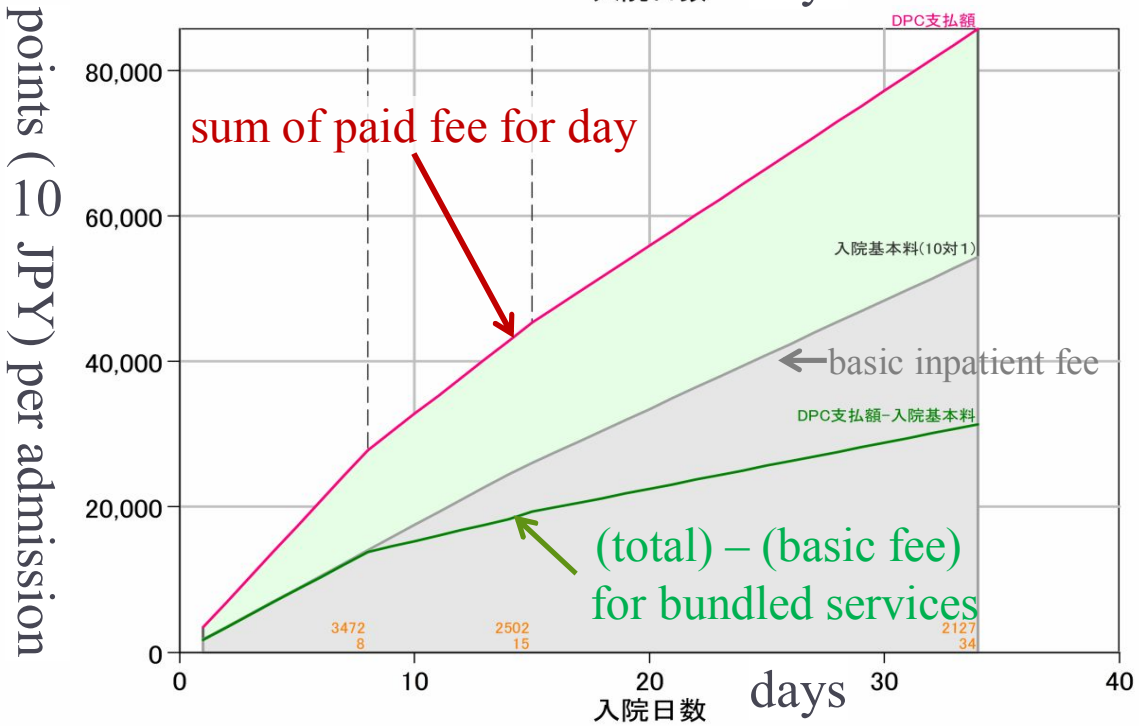
	period Ⅰ	period Ⅱ	period Ⅲ
Days to	8	15	34
JPY	34,720	25,020	21,270

Period Ⅱ is set based on average length of stay

Example:	period Ⅰ	period Ⅱ	period Ⅲ	total
10 day	34,720×8	25,020×2		
admission	277,760	50,040		327,800

4,917,000KRW @15KRW=1JPY
124,564TWD @0.38TWD=1JPY
4,261USD @0.013USD=1JPY

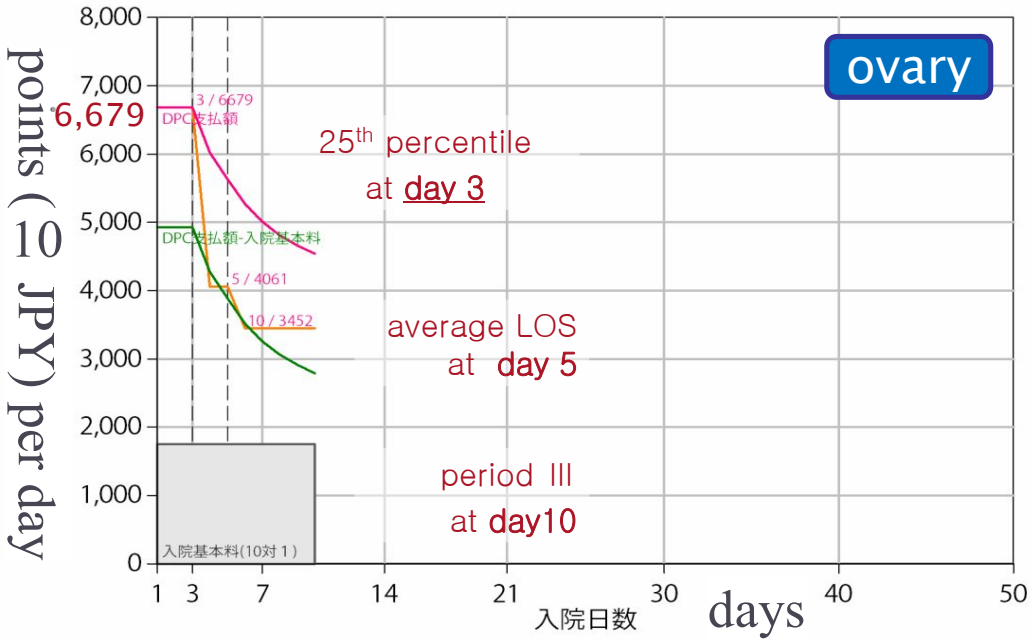


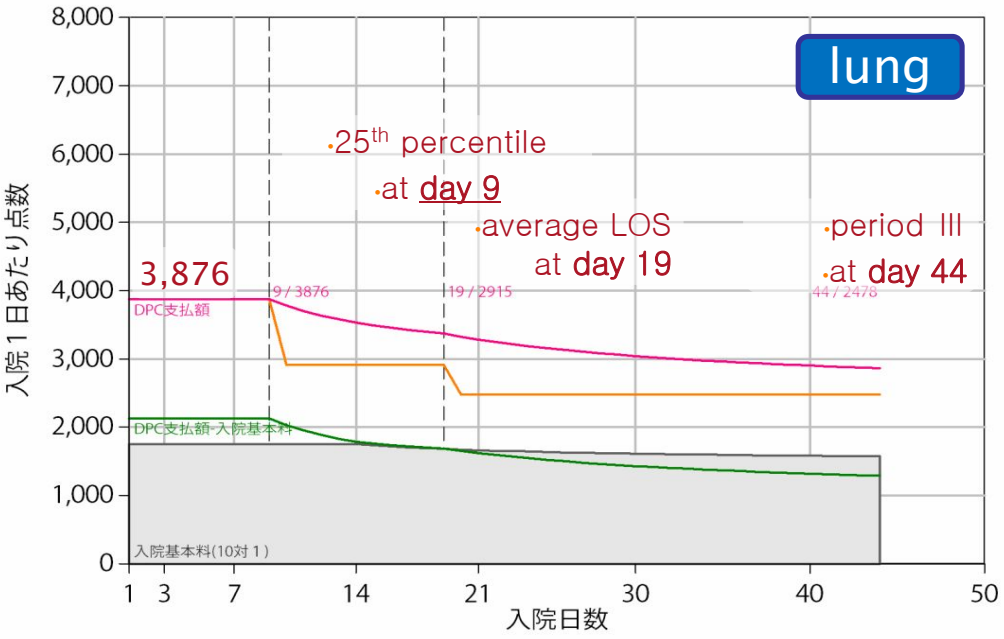


040040xx9904xx

Lung cancer, no surgery, + chemotherapy

- fee for day is reduced in three stages
  - 25th percentile
  - average LOS
  - LOS+2SD's

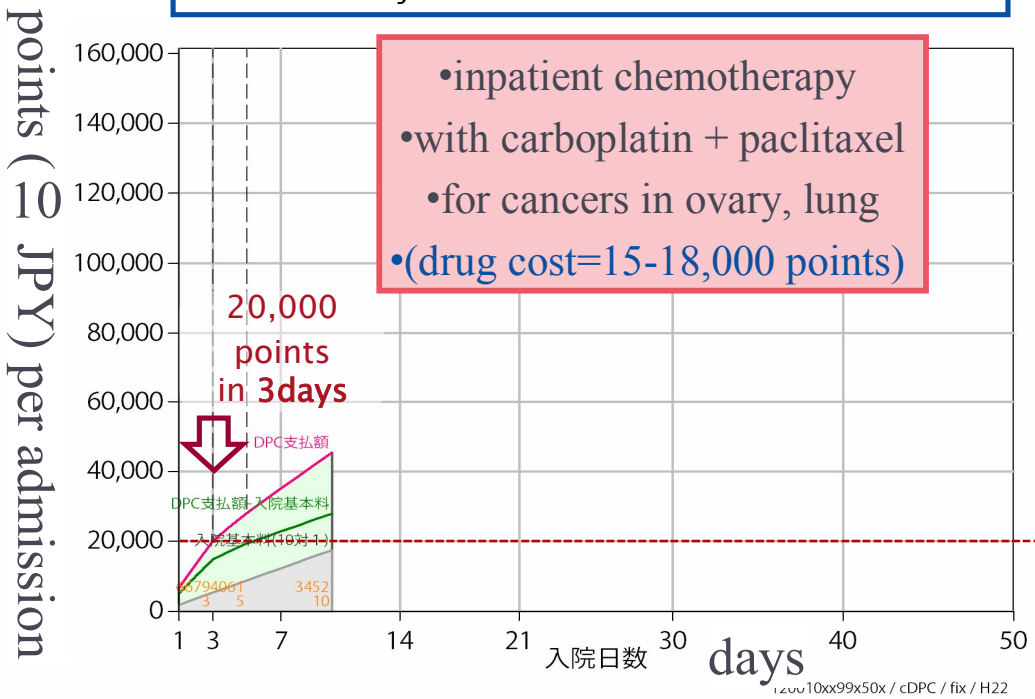


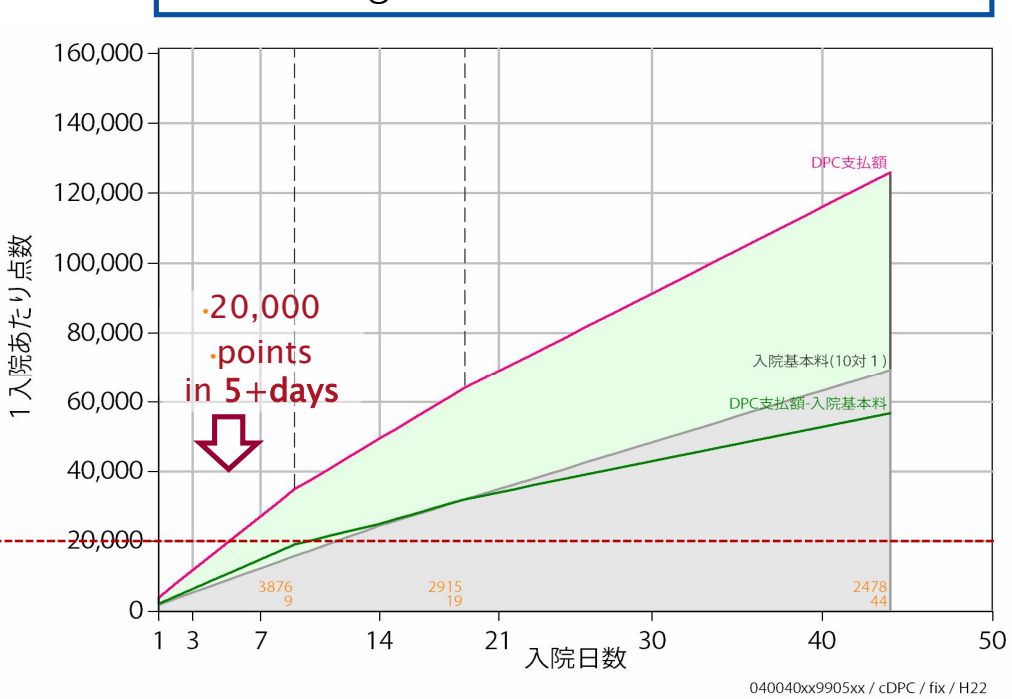


Ovary: 120010 x x 99 x 5 0 x

Lung: 040040 x x 99 0 5 x x

- inpatient chemotherapy
- with carboplatin + paclitaxel
- for cancers in ovary, lung
- (drug cost=15-18,000 points)





120010xx99x50x / cDPC / fix / H22

040040xx9905xx / cDPC / fix / H22

Lung cancer DPC payment groups

by oncology regimen, days and points of PDPS fee schedule

	DPC14 codes	040040 xx9904xx	040040 xx9905xx	040040 xx9906xx	040040 xx9907xx
	regimen	Other regimens	Carboplatin + Paclitaxel	With Pemetrexed	With Bevacizumab
days	Period I	8	9	7	FFS
	Period II	15	19	15	
	Period III	34	44	34	
points	Period I	3,472	3,876	7,734	
	Period II	2,502	2,915	5,842	
	Period III	2,127	2,478	4,966	

Adjustment of payment