Can Case Mix Pay for Performance?

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Goals of Presentation

- To discuss what is meant by Pay for Performance

- To introduce concepts surrounding population-based risk adjustment

- To review examples of how risk adjustment can be applied to Pay for Performance programs

- To introduce the potential implications for Hong Kong

Understanding Pay for Performance

Defining "Pay for Performance"

• Also known as "P4P" or "value-based purchasing," this payment model rewards physicians, hospitals, medical groups, and other healthcare providers for meeting certain performance measures for quality and efficiency.

• Disincentives, such as eliminating payments for negative consequences of care or increased costs, have also been proposed.

• Pilot studies underway have shown modest improvements in specific outcomes and increased efficiency, but no cost savings due to added administrative requirements..

Pay for Performance Criteria

- be quality oriented and clinically useful.

- produce rates of performance for providers and/or
    groups of providers

- be developed with provider input

- be evaluated for reliability and validity

Source: Lawthers, et.al, "*Designing and using measures of quality based on physician office records*", Jo. of Amb. Care Mgmt., Jan. 1995

Understanding Population Based Risk Adjustment

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- **Case Mix / Risk Adjustment**

  is the process by which the health status of a population is taken into consideration when setting budgets or capitation rates, evaluating provider performance, or assessing outcomes of care.
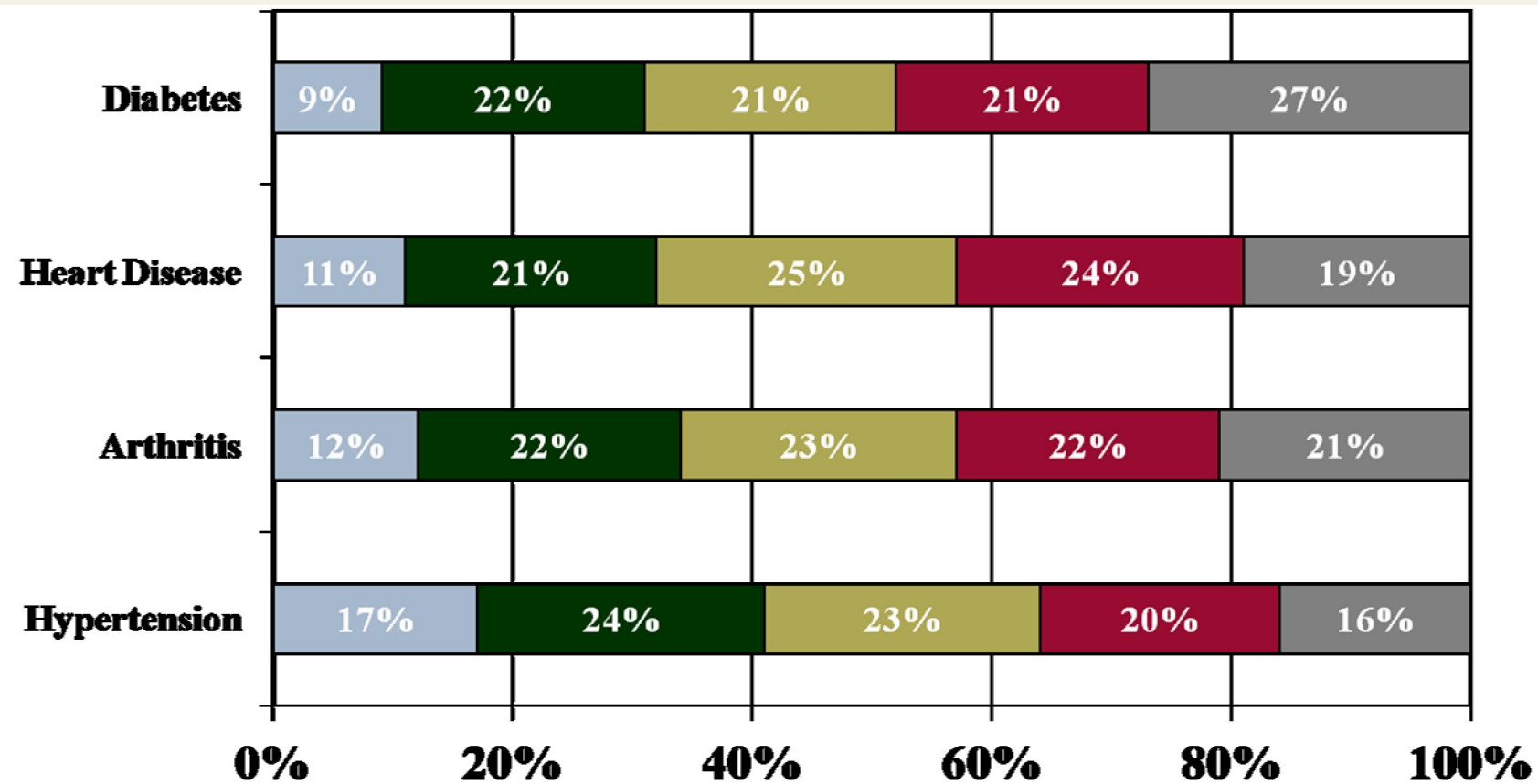
Not all persons have the same need for health care

Percent of Population	Percent of Health Care Dollars Consumed
1%	30%
10%	70%
50%	97%

- **Morbidity is NOT randomly distributed across individuals.**
  - **1) Morbidity "clusters".**
  - **2) Diagnoses co-occur.**

- **The "illness burden" of providers' practices is NOT randomly distributed.**
  - **1) Some providers care for "sicker" patients.**
  - **2) Sick patients choose certain providers referentially.**

Co-morbidity is the norm among older adults

	Single Condition	Condition+1	Condition+2	Condition+3	Condition+4+
Diabetes	9%	22%	21%	21%	27%
Heart Disease	11%	21%	25%	24%	19%
Arthritis	12%	22%	23%	22%	21%
Hypertension	17%	24%	23%	20%	16%

Source: Partnership for Solutions

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These patterns are linked to the prevalence of chronic co-morbidities (Data for Americans 65+)

# Chronic Co-morbidities	% Pop.	Relative Cost (Per Pt.)	Est. % of Total Medicare Costs	Avg. # Unique MDs/Yr.	Avg. # Filled Rx / Yr.
5+	20%	3.2	66%	13.8	49
3-4	27%	.9	23%	7.3	26
0-2	53%	.1	11%	3.0	11

Data Source: G. Anderson et. al., Johns Hopkins Univ. 2003. (Derived from Medicare claims and beneficiary survey.)

Co-morbidity

Total morbidity is not the same as the sum of different diseases, because diseases cluster and are inter-related in various ways.

A more accurate way of characterizing morbidity is to capture the <u>pattern</u> of diseases in people and populations.

What Can Be Achieved with Case Mix

- Equity and fairness

- To identify those patients most in need of health care resources

- To facilitate providers who specialize in treating patients with higher than average illness burden.

- **Create incentives to encourage providers to match services to needs (appropriateness)**

- Ensure appropriate comparisons for research and performance assessment

Case Mix Applications

- **Financing, Payment, Planning**
  - Morbidity-adjusted capitation
  - Allocation of budgets
  - Forecasting healthcare spending

- **Performance Assessment**
  - Profiling high outliers as potentials for fraud/abuse audit
  - Profiling low outliers to review access issues
  - Pay-for-Performance

- **Care Management**
  - Identification of high risk patient for case management
  - Identifying need for tailored program in population subgroups

- **Quality Assurance**
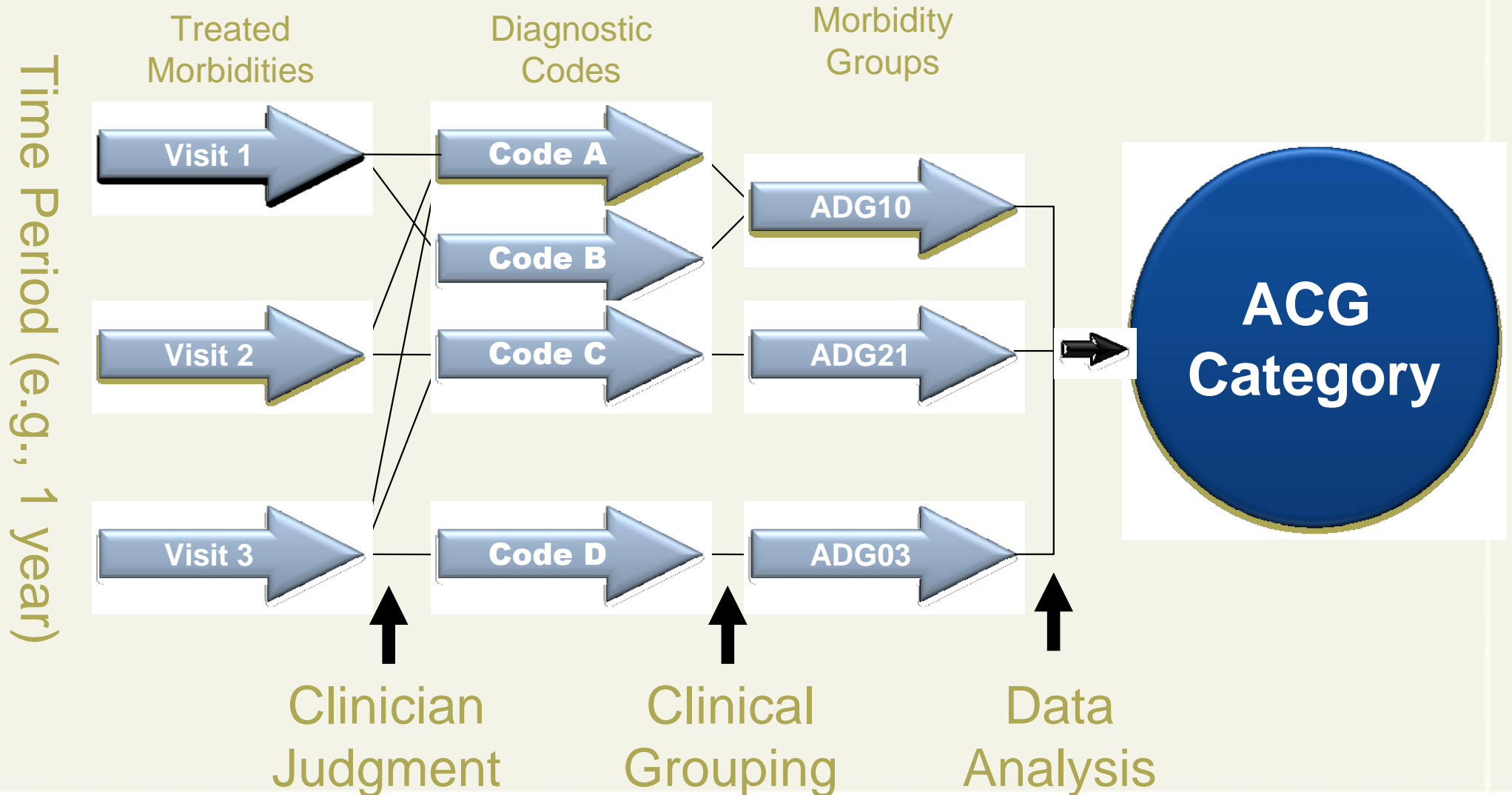 - Intervention Assessment
  - Monitoring outcomes

- **Research**
  - Surveillance for changes in morbidity patterns

Basis of the Johns Hopkins ACG System

- ACGs are generally applied using all diagnoses describing the person. They do not focus on individual visits. Ideally they are derived from primary and specialty ambulatory contacts as well as inpatient

- Comprehensive measure of a population's risk and morbidity burden. They do not just categorize organ system-based diseases. Roots were primary care / population based.

- Considers the entire population – even the healthy.

ACG Actuarial Cells Reflect the Constellation Of Health Problems Experienced by a Patient

Time Period (e.g., 1 year)

Treated Morbidities

Visit 1

Visit 2

Visit 3

Diagnostic Codes

Code A

Code B

Code C

Code D

Morbidity Groups

ADG10

ADG21

ADG03

ACG Category

Clinician Judgment

Clinical Grouping

Data Analysis

Population Case-Mix vs. Episodic Case -Mix

DRGs categorize individuals,

- considering their experience with the particular provider

- An illness or event,

- over a specified period of time

ACGs categorize individuals,

- considering their entire experience with the health care system,

- their whole morbidity,

- over a period of time

Risk Adjusted

Performance Assessments

Provider Performance Profiling

- "*How does a provider's pattern of practice* **compare** *to that of other providers once case-mix is accounted for*?"

- Typically, profiling involves examination of resource utilization: dollars spent on overall patient care or discrete services such as laboratory, pharmacy or inpatient care.

- By taking into account the differences in illness burden among different providers' patient populations, Risk Adjustment allows one to determine whether variations in practice are a result of providers having sicker patient populations or whether these variations are actually attributable to differences in the way providers practice medicine.

Interpreting Profiling Results…
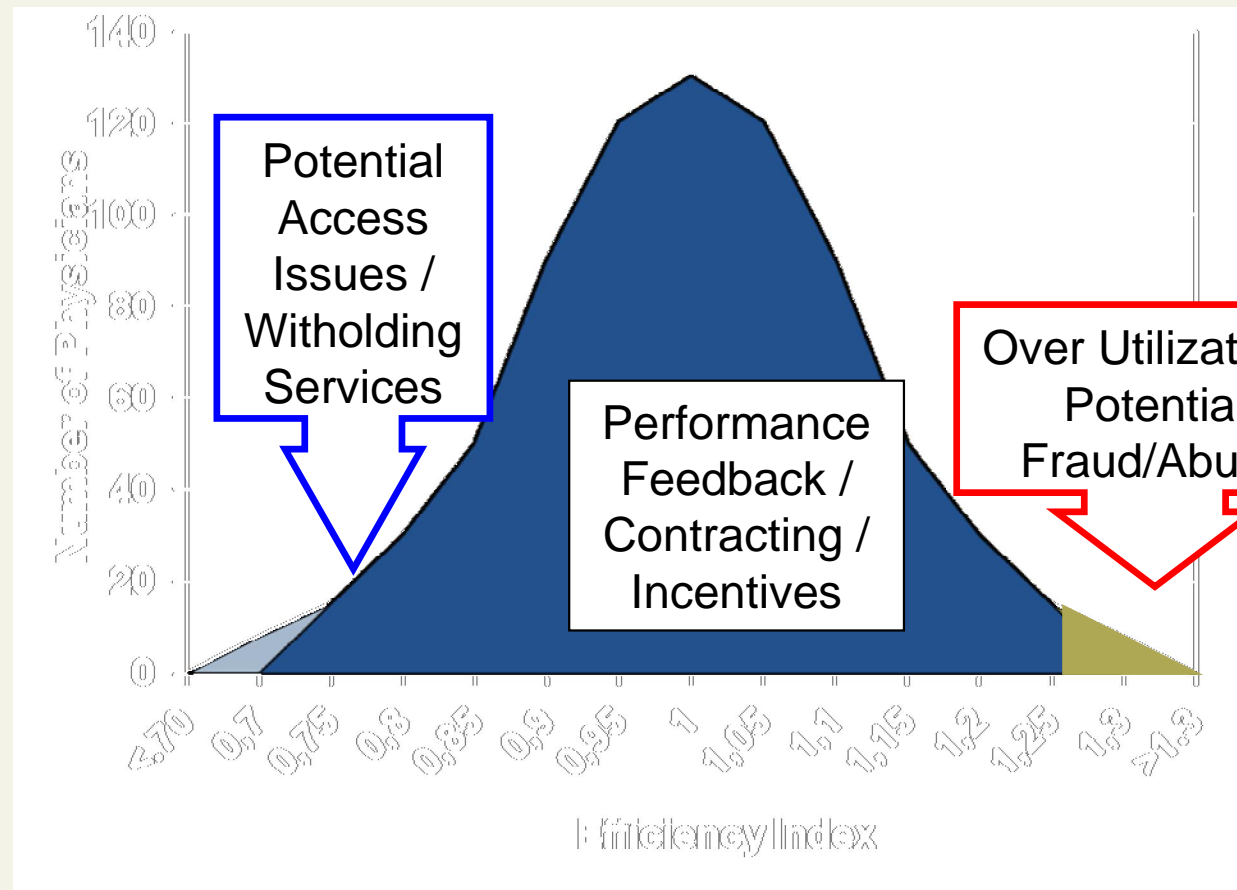
Clinic 1 vs. 2, Expected Costs

ACG	Clinic 1's Panel N (Expected)	Clinic 2's Panel N (Expected)	Expected (mean costs)
0100	5 ($500)	8 ($800)	$100
0200	2 ($500)	6 ($1,500)	$250
0300	3 ($900)	3 ($900)	$300
0400	10 ($5,000)	3 ($1,500)	$500
Total	20 ($6,900)	20 ($4,700)	$315

Clinic 1 vs. Clinic 2 : Performance Assessment

Performance Assessment Ratio	Clinic A (Actual = $6,400)	Clinic B (Actual = $6,000)
Resource Use Ratio	$6,400/($315*20)=	$6,000/($315*20)=
Morbidity Ratio		...0)=
Efficiency Ratio		...0=

The "Resource Use Ratio" is the ratio of the actual costs to the overall average. It tells us whether the provider is using more or less services than the average, before we control for the underlying health status of the members.

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Clinic 1 vs. Clinic 2 : Performance Assessment

Performance Assessment Ratio	Clinic A (Actual = $6,400)	Clinic B (Actual = $6,000)
Resource Use Ratio	$6,400/($315*20)= 1.02	$6,000/($315*20)= 0.95
Morbidity Ratio	$6,900/($315*20)= 1.10	$4,700/($315*20)= 0.75
Efficiency Ra		=

"Morbidity Ratio" describes the overall morbidity level of the population served by this provider. Calculated using the ACG System, values greater than 1.0 mean that the patients are sicker than average; values less than one represent groups of patients that are healthier than average.

Clinic A vs. Clinic B : Performance Assessment

| Performance Assessment Ratio	Clinic A (Actual = $6,400)	Clinic B (Actual = $6,000)
Resource Use Ratio	$6,400/($315*20)= 1.02	$6,000/($315*20)= 0.95
Morbidity Ratio	$6,900/($315*20)= 1.10	$4,700/($315*20)= 0.75
Efficiency Ratio	$6,400 / $6,900=	$6,000 / $4,700=

"Efficiency Ratio" is the ratio of "observed-to-expected." The "observed" amount is the actual utilization. The "expected" amount is the predicted utilization after accounting for the overall illness burden of the members who use this provider. Values below 1.0 mean that the provider is more efficient than the average provider that cares for patients with similar morbidity

Pharmacy cost x patient: observed (🟩) and expected (🔶)

> **Efficiency Index: 0,79**
> ## 21% undercost
> ## 943.000 €

> **Efficiency Index: 1,27**
> ## 27% overcost
> ## 737.000 €
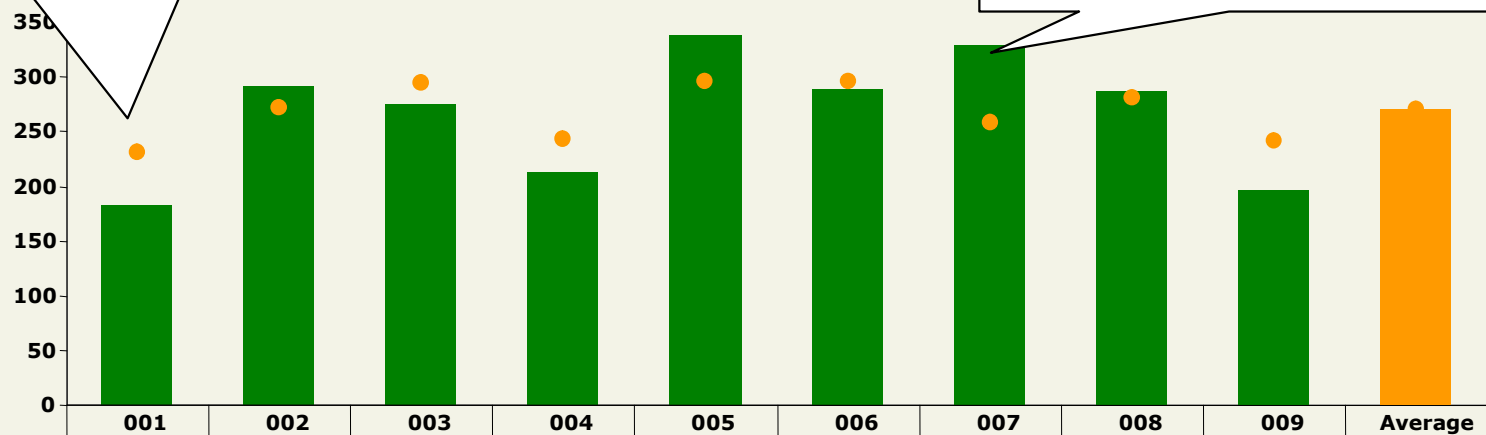
	001	002	003	004	005	006	007	008	009	Average
🟩 Mean Cost (€)	182,58	291,57	274,75	212,19	337,71	289,03	328,99	287,14	196,36	270,49
🔶 Mean cost (€) expected	231,02	271,59	293,94	243,63	296,59	295,57	258,10	280,21	241,01	270,49

Overcost or undercost, related to standard

	001	002	003	004	005	006	007	008	009	
Efficiency Index	0,79	1,07	0,97	0,87	1,14	0,98	1,27	1,02	0,81	
Impact (€)	943.068	510.658	280.254	481.278	715.386	121.540	736.869	144.487	281.209	

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Risk-Adjusted O/E (Efficiency) Profiling Ratios for GPs Across a UK Primary Care Trust (PCT)

Legend: □ No of referrals ■ No of unique prescriptions / month □ No of unique radiology tests

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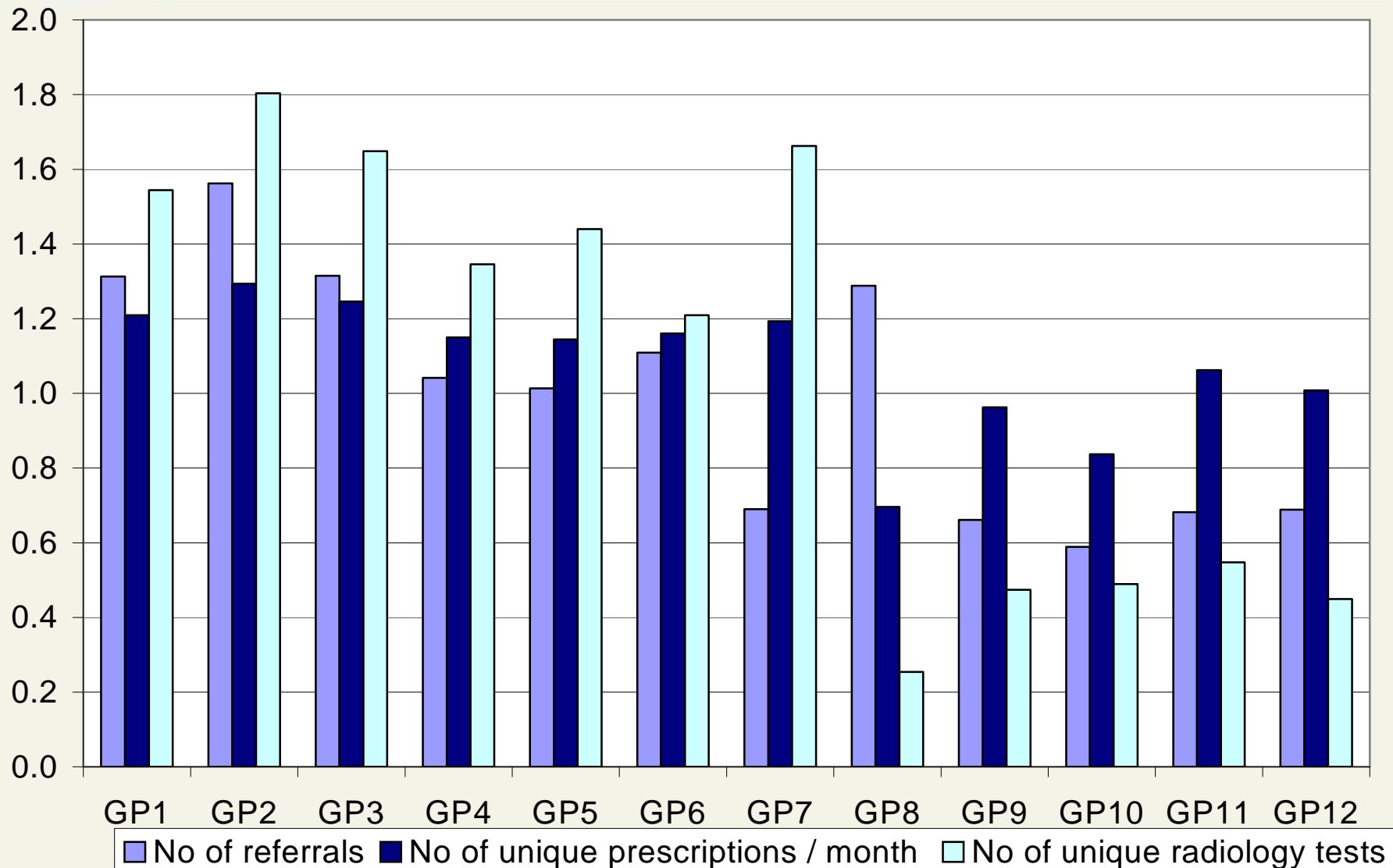
Using ACGs to Risk-Adjust Performance "Profiles" of Provider Groups

Group	PMPM $	Unadjusted Relative Cost	ACG "Illness Burden"	ACG Adjusted Efficiency Ratio
#1	$157	1.22	1.02	1.20
#2	153	1.19	1.21	0.99
#3	144	1.12	0.92	1.22
#4	98	0.76	0.69	1.11
All*	$129	1.00	1.00	1.00

Risk Adjusted Practice Efficiency of Doctor Group #3 By Service Category

Type of Service	Relative Cost	ACG Illness Burden	Efficiency
Inpatient	0.91	0.90	1.01
Primary Care	1.20	1.15	1.04
Surgery	2.23	0.91	2.45
Medical Specialties	1.61	0.92	1.75
Lab & x-ray	1.77	0.85	2.08
Pharmacy	.86	0.85	1.01
Total	1.12	0.92	1.22

- Developing financial incentives

  - Distributing bonuses

  - Differentiating fee schedules

- Profiling/Assessment tool

  - To stimulate voluntary changes in behavior by sharing valid data presented in a useful format.

  - To identify potential fraud & abuse.

- Can be developed on a number of levels, including: regions, clinics, or providers

Limitations

- Requires electronic recording of diagnoses.

- Patients may see numerous providers.

- Needs a measure of resource utilization.

- Outcomes are difficult to measure and take time.

Could Case-Mix Work In Hong Kong?

Experience to date, based on the interim results of our pilot project with the Hospital Authority, suggests that the existing database and the variance in morbidity patterns within Hong Kong are suitable for application of a case-mix tool.

Concluding Comment

Case Mix is critical to ensuring the equitable delivery of health care, promoting the continuity of care and enabling the targeting of limited resources.

Opportunities for learning more about the Johns Hopkins ACG System

- Web Site:
  - www.acg.jhsph.edu

- To learn more, contact:
  - Dr. Karen Kinder, Executive Director
    - kkinder@jhsph.edu

2nd Johns Hopkins Asia Pacific Conference on Case Mix

"*From Information to Intervention:*

Improving the Delivery of Integrated Health Care"

Friday, November 25, 2011 9am – 5pm

Hong Kong Academy of Medicine

www.acg.jhsph.edu