

**PCSI Casemix Winter School 2011 - “Casemix-Based Financing of Healthcare”, DRAFT Curriculum**

<b>Day One: Casemix Funding and Quantitative Methods Basics</b>	<b>Day Two: Quantitative Methods to Support Casemix Funding</b>	<b>Day Three: Development of Payment Weights</b>	<b>Day Four: Quality of Care, Pay for Performance, Data Quality</b>	<b>Day Five: Assessment</b>
<ul style="list-style-type: none"> <li>Student check-in (8:30 to 9:00)</li> <li>Welcome by PCSI (09:00 – 09:05)</li> <li>Course overview (09:05 – 09:30)                             <ul style="list-style-type: none"> <li>Objectives, curriculum, format, logistics</li> </ul> </li> <li>Roundtable introduction (09:30 – 10:00)                             <ul style="list-style-type: none"> <li>Faculty and participants</li> </ul> </li> </ul>	Regression modelling (09:00 – 11:30) <ul style="list-style-type: none"> <li>Assessment of relationship between dependent and independent effects</li> <li>Assessment of error distribution</li> <li>Linear regression (OLS, WLS)</li> <li>Confounding, interactions, collinearity</li> <li>Outliers</li> </ul>	Case Costing (09:00 –10:30) <ul style="list-style-type: none"> <li>Bottom-up and top-down costing</li> <li>Cost modelling</li> <li>Accuracy, representativeness, and completeness</li> <li>Adopting cost weights or case-cost data from other countries</li> <li>Costs versus charges or prices</li> </ul>	Pay for performance (09:00 – 10:30) <ul style="list-style-type: none"> <li>Hospital payment and quality measures</li> <li>Quality of care, outcomes and health status measurement</li> <li>Alignment with payment system objectives</li> <li>Stimulating changes in activity</li> <li>Measuring quality from administrative data</li> <li>Health status measurement</li> </ul>	Assessment of DRG Funding (08:30 – 10:00) <ul style="list-style-type: none"> <li>Evaluation of payment rate incentives relative to policy objectives</li> <li>Longitudinal analysis of performance</li> <li>Efficiency, cost, length of stay, quality, readmissions</li> </ul>
Hospital Funding Designs (10:00 – 12:30) <ul style="list-style-type: none"> <li>Economic principles, health policy objectives and incentives</li> <li>Common hospital funding models                             <ul style="list-style-type: none"> <li>Fee for service, block funding, capitation, partial capitation</li> </ul> </li> <li>DRG                             <ul style="list-style-type: none"> <li>Historical background and evolution</li> <li>Appeal of DRG and alignment with policy practices and objectives</li> <li>Implementation approaches</li> <li>Overview of country-specific variants</li> </ul> </li> </ul>	Decision tree modelling (11:30 – 12:45) <ul style="list-style-type: none"> <li>Applications in DRG design</li> <li>CART, CHAID</li> <li>How decision trees and regression complement one another</li> </ul>	Developing payment weights (10:50 – 12:45) <ul style="list-style-type: none"> <li>Considerations of policy goals in price setting</li> <li>Relationship between cost and price</li> <li>Long and short stay trimming</li> <li>Outlier payments</li> <li>Atypical payment</li> <li>Adjustments for structural and environmental effects (e.g. variations in wage rates, remoteness, teaching)</li> <li>Estimation of per diems</li> <li>Estimation of marginal costs</li> <li>Identifying and handling anomalous cost data</li> </ul>	Design of coding-quality monitoring systems (10:50–11:45) <ul style="list-style-type: none"> <li>Re-abstraction studies and data audits                             <ul style="list-style-type: none"> <li>Sampling</li> </ul> </li> <li>Longitudinal analysis</li> <li>Control charts</li> </ul> Gaming, DRG creep (11:45 – 12:45) <ul style="list-style-type: none"> <li>Strategies for identification and management</li> <li>Penalties and modification of DRGs</li> <li>Untangling impacts of volume and input price changes on hospital expenditures</li> </ul>	Data analysis practice #3 (10:00 – 12:15) <ul style="list-style-type: none"> <li>Groups of 4 or 5 students &amp; 1 faculty member</li> <li>Assessment of 1<sup>st</sup> year implementation of DRG funding                             <ul style="list-style-type: none"> <li>Changes in casemix, activity, efficiency, and quality of care</li> <li>Impacts on coding quality</li> </ul> </li> </ul> Synthetic data provided to students (see below for description)
Lunch (12:45 – 14:00)	Lunch (12:45 – 14:00)	Lunch (12:45 – 14:00)	Lunch (12:45 – 14:00)	Lunch (12:15 – 12:45, in classroom)
DRG Design (14:00 – 15:00) <ul style="list-style-type: none"> <li>Design Considerations and Principles</li> <li>Importance of clinical relevance and clinician input</li> <li>Inputs – clinical data, admin data</li> <li>Evaluating clinical data quality</li> <li>Age, comorbidity/complexity/severity adjustments, interventions</li> </ul>	Data analysis practice #1 (14:00 – 17:00) <ul style="list-style-type: none"> <li>Groups of 4 or 5 students &amp; 1 faculty member</li> <li>Assessment of DRG system                             <ul style="list-style-type: none"> <li>DRG homogeneity and goodness of fit</li> <li>Use of decision trees to identify potential splits</li> </ul> </li> <li>Facility comparisons and casemix standardization</li> <li>Facility variations in clinical coding</li> <li>Class discussion of findings</li> </ul> Synthetic data provided to students (see below for description)	Data analysis practice #2 (14:00 – 17:00) <ul style="list-style-type: none"> <li>Groups of 4 or 5 students &amp; 1 faculty member</li> <li>Begin design of a DRG-based payment system funding model</li> <li>Develop payment weights</li> <li>Setting of hospital price per weighted case considering hospital effects</li> <li>Class discussion of findings</li> </ul> Synthetic data provided, same data as for data analysis practice #1	No afternoon classes  Afternoon Group Activities (14:00 – 17:00)	Data analysis practice #3 cont'd (12:45 – 13:30) <ul style="list-style-type: none"> <li>Class discussion of findings</li> </ul>
Intro to Quantitative Methods (15:20 – 17:00) <ul style="list-style-type: none"> <li>Applications in DRG design, evaluation, and payment-price estimation</li> <li>Probability distributions                             <ul style="list-style-type: none"> <li>Cost</li> <li>Length of stay</li> </ul> </li> <li>Transformations</li> <li>Test and validation samples</li> <li>Assessment of goodness of fit                             <ul style="list-style-type: none"> <li>R<sup>2</sup>, bias, prediction error, coefficient of variation</li> </ul> </li> <li>Graphical techniques (box whisker plots, histograms, etc)</li> </ul>				Course closing (13:30 – 14:00) <ul style="list-style-type: none"> <li>Course evaluation</li> <li>Closing remarks by PCSI</li> </ul>

Coffee Breaks at 10:30 and 15:00

Synthetic Data for Data Analysis Practice #1 and #2

- Patient level discharge data:
- diagnoses, interventions, total cost of episode, length of stay, readmission
  - hospital attributes (e.g. size, level of teaching, tertiary level)
  - assigned DRG values (e.g. DRG cell, cost weight)

Synthetic Data for Data Analysis Practice #3

- Patient level discharge data from 1<sup>st</sup> year implementation of DRG funding:
- diagnoses, interventions, total cost of episode, length of stay, readmission
  - hospital attributes (e.g. size, level of teaching, tertiary level)
  - assigned DRG values (e.g. DRG cell, cost weight)
  - post implementation changes in length of stays, costs, cost per weighted case, activity levels, casemix, and quality