Investigating provider payment mechanisms in the lab

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Motivation

- Remuneration mechanisms are key to shape the performance of health care systems

- Difficult search for optimal incentives
  - From traditional remuneration schemes (SAL, FFS, CAP) to bundled payments and P4P
  - Multi-tasking environment: quality and quantity of care
  - Altruistic providers

- Existing evidence is limited
  - Difficulty to disentangle effects of remuneration schemes from other contextual factors / incentive design characteristics
  - Observing quality of effort is difficult
  - Isolating impact of patient's benefits on doctor's labour supply decisions is impossible

Experimental Economics

- Controlled environment
  - Actual monetary incentives to elicit decisions
  - All variables and rules externally manipulated by experimenter

- Large body of work on remuneration schemes
  - Chosen effort experiments
    - Decisions about virtual levels of effort, associated (real) benefit function
    - Few applications in health economics to date: Hennig-Schmidt 2011 (JHE), Brosig-Koch et al. 2013, Keser et al. 2013
  - Real effort experiments
    - Performing simple tasks (additions, counting letters, data entry, etc.)
    - Actual effects of real effort (boredom, intrinsic motivation)

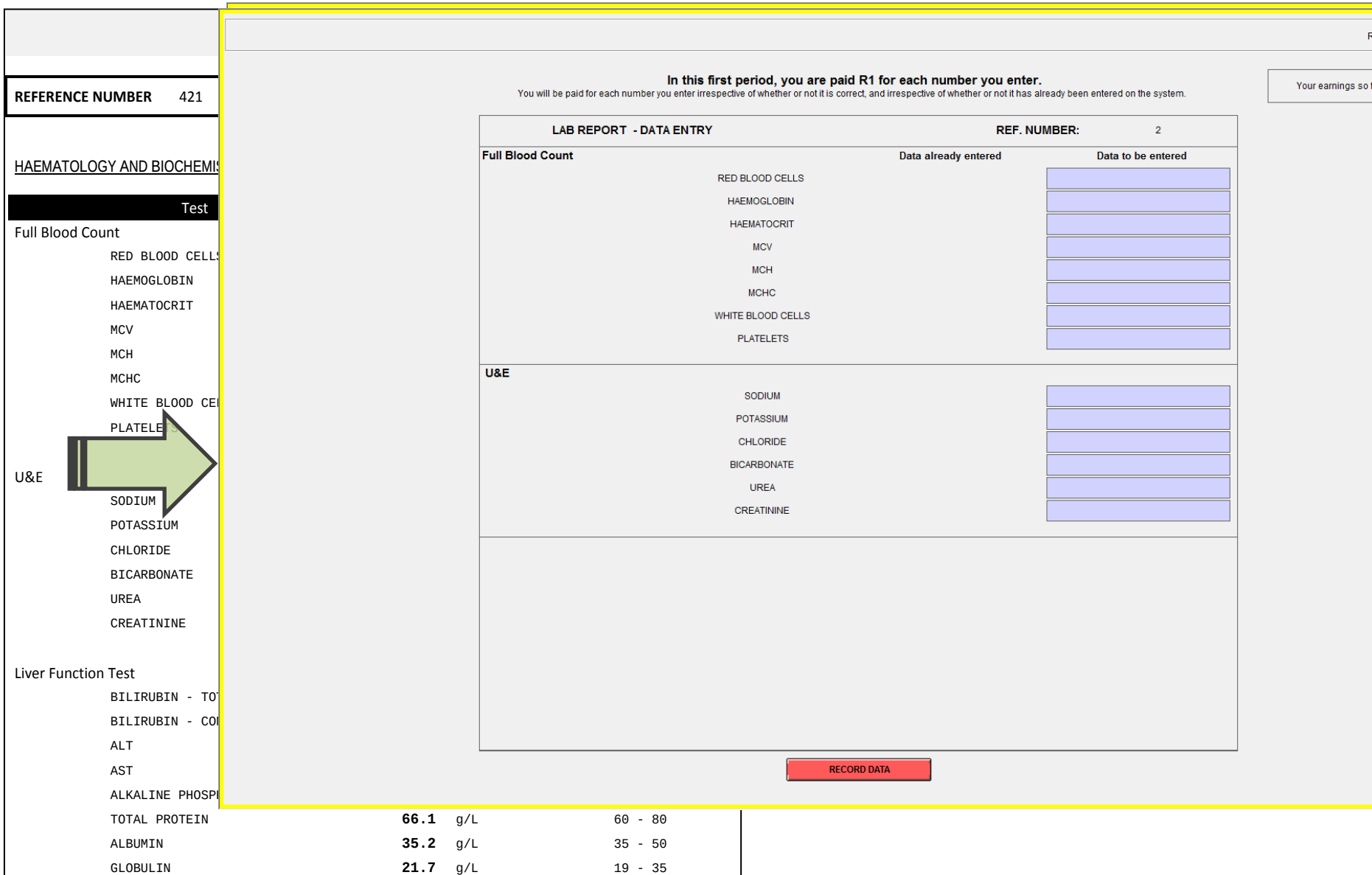
Research questions

- What is the relative impact of CAP, SAL and FFS on physicians' effort (quantity & quality)?

- What is the impact of patients' benefits on physicians' effort?

- What is the relative impact of two quality-enhancing interventions
  - Pay-for-Performance
  - Public reporting

The medical game: overview



Payment

- 4 consecutive periods of 8min
  - 15 laboratory reports to enter (9 long, 6 short)
- Each period remunerated differently
  - Fee-for-service: R1 for each number entered (correct or not)
  - Capitation: R12/R15 for basic/extended report (correct or not)
  - Salary: R125 for the whole period
  - Period 4: choice of remuneration scheme
- Other experimental procedures
  - Random order of first 3 remuneration schemes
  - One period chosen for payment

Outcome variables

- Quantity of effort

In the game	"Equivalent" in real life
# of numbers entered	# of services provided
# of reports completed	# of patients seen

- Quality of effort

In the game	"Equivalent" in real life
% of correct entries	Index of quality of care provided
% of reports with less than 90% of correct entries	Shirking (% of patients receiving poor care)

- Unintended consequences

In the game	"Equivalent" in real life
# of entries unnecessarily made	Over-servicing
% of numbers entered purposefully incorrectly	Gaming

Experimental design

- Participants randomly allocated to a treatment

- Baseline (N=66)
- Social benefit (N=66)
  - A charity receives R0.50 per correct entry

- Pay-for-performance (N=66)
  - Remuneration partly conditioned to quality: R0.20 for each correct entry

- Public reporting (N=58)
  - Performance (# correct entries made) reported in front of class before payment

PRELIMINARY RESULTS

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(1) Effects of remuneration schemes (baseline treatment)

	Quantity		Quality		Unint. csq	
Dependent variable	# of acts performed	# of patients seen	Index of quality of care	Shirking rate	Over-servicing	Gaming
	(1)	(2)	(3)	(4)	(5)	(6)
SAL	**-51.636*** **	**-2.045*** **	**0.095*** **	**-0.033***	**-2.163** **	**-0.223*** **
	(10.235)	**(0.619)**	**(0.027)**	**(0.017)**	**(0.763)**	**(0.038)**
CAP	-11.273	-0.318	0.045	-0.005	**-2.216*** **	-0.053
	(10.679)	(0.468)	(0.026)	(0.015)	**(0.551)**	(0.038)
N_acts			-0.004***		0.105***	
			(0.001)		(0.006)	
N_patients				0.012***		
				(0.002)		
Constant	199.364***	10.682***	1.186***	-0.118***		
	(19.885)	(0.963)	(0.161)	(0.032)		
Controls	N	N	N	N	N	N
Observations	198	198	198	198	198	198

(2) Impact of social benefit

	QUANTITY	
	# of acts performed	# of patients seen
SB*SAL	ns	ns
SB*FFS	ns	ns
SB*CAP	ns	ns

(3) P4P vs. public reporting

	QUANTITY		QUALITY		UNINT. CSQ	
	# of acts performed	# of patients seen	# of acts well performed	Poor care rate	Over-servicing	Gaming
P4P*SAL	ns	ns	ns	ns	ns	ns
P4P*FFS	ns	ns	0.089*	ns	ns	-0.180***
P4P*CAP	ns	ns	ns	ns	ns	-0.139***

Summary of preliminary results

- Confirm some theoretical predictions
  - FFS leads to highest quantity of effort
    - Incentives of CAP not clear enough?
  - Low-powered incentives (salary) leads to better quality
    - Quantity-quality trade-off
  - Over-servicing when high powered incentives linked to quantity
- Support models of altruistic physicians
- Information (public reporting) as cost-effective alternative to P4P?

Future work

- Further analysis
  - Quantity-quality trade-offs
  - Determinants of self-selection into remuneration schemes
- Experimental economics has a role to play in health economics
  - Possible to isolate relative effect of different designs more easily
  - Unpack interactions between remuneration schemes and institutional characteristics

Thank you

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Capturing over-servicing