

Financial considerations for purchasing a mass spectrometer

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Disclosures

- No Conflict of Interest to Disclose

Learning Objectives

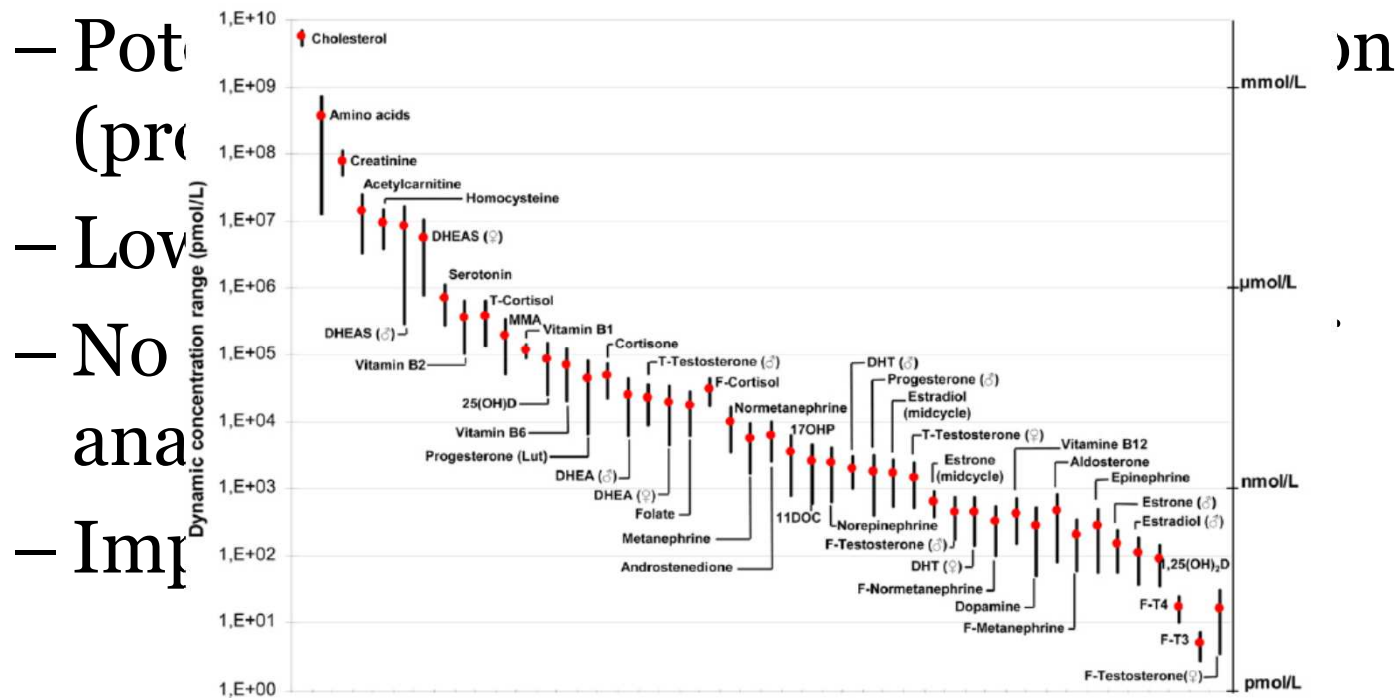
- Describe the clinical and monetary benefits of purchasing a mass spectrometry system
- Explain the financial components that have to be considered when purchasing a mass spectrometry system
- Calculate the return on investment for the purchase of a mass spectrometer
- Participate in effective negotiations with vendors
- Describe the options for financing a mass spectrometry system purchase
- Get a mass spectrometry system for free*

Polling Question #1

- Why are you thinking of buying a mass spectrometry system?
 - A. Better quality
 - B. Improved sensitivity over immunoassays
 - C. Improved turn-around-time from sendout
 - D. To save money
 - E. No alternative option for testing on market

Clinical and Quality Benefits (Not just the money!)

- Why LC-MS/MS?
 - Highly specific and accurate quantitation



Vogeser, M. et al. *Exp Clin Endocrinol Diabetes* 2007; **115**: 559-570.

Monetary Benefits

- Cheaper vs sending out to reference lab
- Potential for outreach business by acting as reference lab
- Cheaper reagents than other assays (although initial cost of instrument is high)

How do you convince your administrator that a mass spectrometer is a good investment?

- Speak their language
- Answer the following questions:
 - What's the ROI (Return on investment)?
 - How much capital do you need?

Return-On-Investment

- a performance measure used to evaluate efficiency of an investment

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

- Typically reported in % or ratio of profit-to-investment

Cost of an LC-MS

One off costs

- Mass spectrometer
- Liquid chromatography system
- Nitrogen generator
- UPS
- Interface to LIS
- Electrical work
- Duct/venting work
- Removal of benches
- And others

Example \$ amounts

400,000

40,000

25,000

8,000

30,000

3,000

10,000

200

Total \$516,200
(per mass

Cost of an LC-MS

Recurring costs

- Service contract
(1st year is free – covered by warranty)
- Reagents and consumables
- Personnel (for 2 technologists in CA)
- And others (Regulatory...etc)

Example \$ amounts

30,000/year/instrument

see next slide

225,000/year

Total ~\$255,000/year

5-year total ~\$1,275,000

Polling Question #2

- Have you purchased a used LC-MS system?
 - Yes
 - No

What are the gains from investment in mass spectrometry?

- Example: immunosuppressants by immunoassay
- Predicted reagent cost by LC-MS/MS: \$3 per patient sample

Test	Current methodology			New methodology	Difference
	Cost per test	Yearly volume	Yearly cost	Estimated yearly cost	
Cyclosporine	\$17.00	3,000	\$51,000	\$9,000	-\$42,000
Sirolimus	\$19.00	1,700	\$32,300	\$5,100	-\$27,200
Tacrolimus	\$17.00	23,000	\$391,000	\$69,000	-\$322,000

Total savings **\$391,200/year**
5-year total **\$1,956,000**

What are the gains of investment in mass spectrometry? (cont)

Recoup costs

- Bill for in-house test
- Realistically recover ~ 25%
 - cyclosporine
 - sirolimus
 - tacrolimus

Example \$ amounts

\$225/sample

\$56.25/sample

\$168,750/year

\$95,625/year

\$1,293,750/year

Total \$1,558,125/year

5-year total \$7,790,625

Note: billing depends on outpatient vs inpatient test volume at your institution

Return on Investment calculation (ROI)

- Example: buy 2 LC-MS/MS systems to run immunosuppressants (cost estimate over 5 years)
 - LC-MS/MS one-off cost **\$1,032,400**
 - Yearly costs **\$1,275,000**
 - Savings per test (gain) **\$1,956,000 on reagents**
 - Recoup cost (gain) **\$7,790,625 on billing**

$$\text{ROI} = \frac{(\text{Gain from Investment} - \text{Cost of Investment})}{\text{Cost of Investment}}$$

$$\text{ROI} = \frac{(\$9,746,625 - \$2,307,400)}{\$2,307,400} \times 100 = +322\% \text{ in 5 years}$$

But what if they won't give u \$2.3 million dollars to spend?

Polling Question #3

- How do you acquire a mass spectrometer?
 - A. Capital Purchase
 - B. Long-Term Lease
 - C. Reagent Rental Agreement
 - D. Free
 - E. N/A - never bought one but I can't wait!!

Polling Question #4

- If you lease an MS, what do you do at the end of term?
 - A. Purchase at Fair Market Value
 - B. Extend lease contract (as is)
 - C. Re-negotiate an extension
 - D. Return to vendor

How do you finance the initial instrument cost?

- Capital equipment budget
- Instrument lease
 - pay whole cost of instrument during monthly payments - lease to own (\$2.3 mill. becomes \$45,000/month)
 - pay smaller monthly payment but do not own instrument at end of lease, but you have 3 good options:
 - Purchase it for market value (usually below \$50,000 per instrument after 5 years)
 - Extend contract for another 2-3 years
 - Return to vendor

Tips for negotiation

1. Always submit RFP to at least 2 vendors (more is better)
2. Expand your training slots (at least 3/instrument purchased)
 - These are almost free give-aways for vendors
 - Also make sure that these are good for 5 years
3. Get written confirmation of all of requests– don't just take their word for it (e-mail is ok, doesn't have to be contract)

Polling Question #5

- Can you get a MS for free?
 - A. Yes
 - B. No

Tips for negotiation (Cont'd)

4. Shift the cost of development and validation time to the vendor
 - Can contract so that you don't get charged until validation is complete or 3 months after the MS is installed.

**That's typically 1-3 months for straightforward methods—
that's up to ~\$150,000 in instrument costs alone!!**



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Please let us know what training resources you need

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