CHALLENGES FOR HEALTH CARE: THE IMPACT OF AMR ON COSTS OF CARE

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Pay now - and pay later

- Some costs are being incurred now – we are already paying
- Other costs we will be forced to pay later…..

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What we're paying now – the direct costs of AMR

- longer medical treatment - length of stay (LOS)
- costly second- and third-line therapies
  - Sometimes as much as **100 times** more costly
- screening and diagnostics to detect and prevent the spread of resistant strains
- Infection control measures
- Surveillance and monitoring costs

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Indirect costs we are paying now

- poor patient health
  - longer term disability
  - excess mortality
- economic burden on patients and families
- expensive risk-reduction efforts to limit the spread of the resistant pathogens

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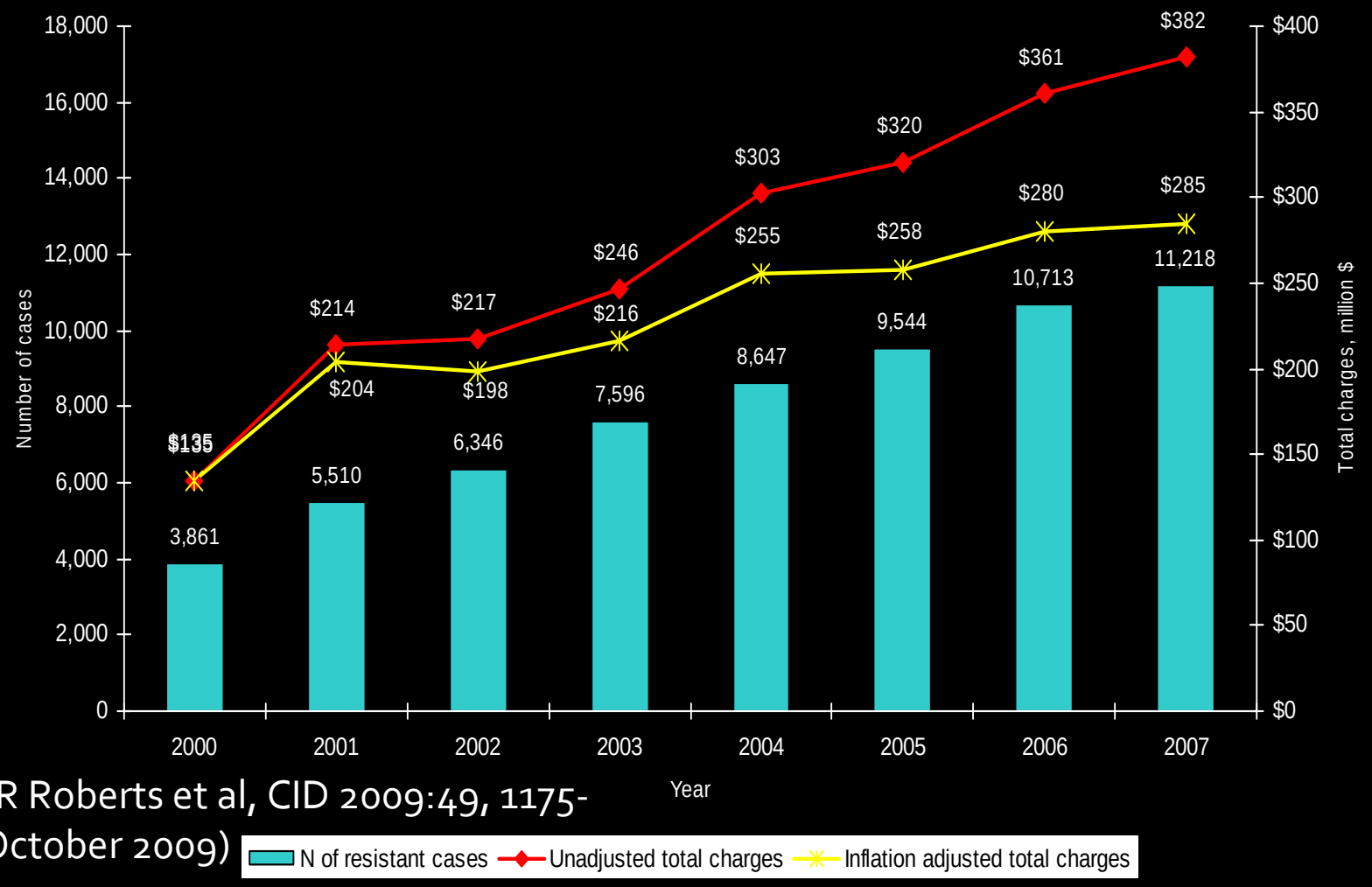
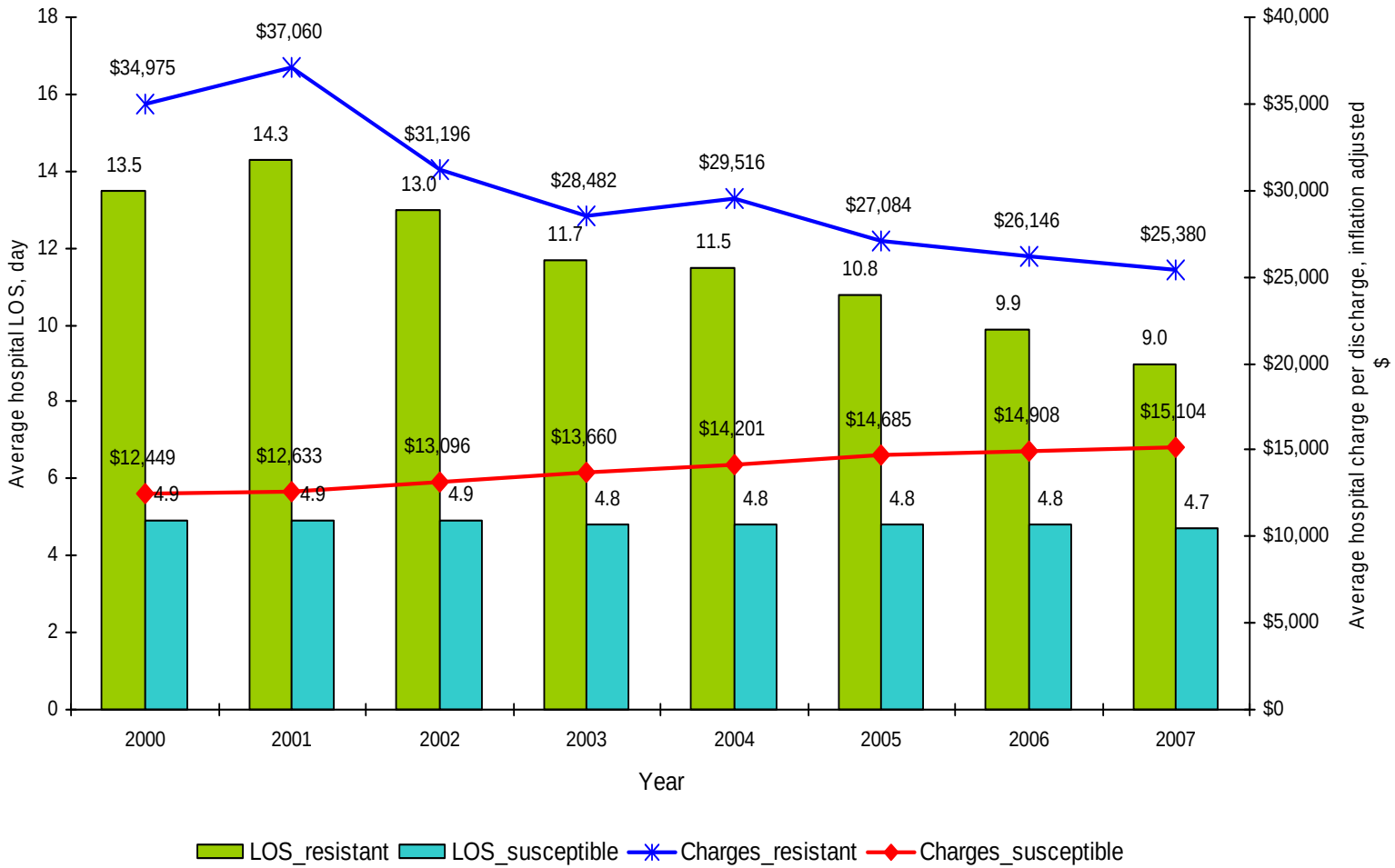
Trends in hospital discharges reporting antibiotic resistance in Massachusetts, 2000-2007



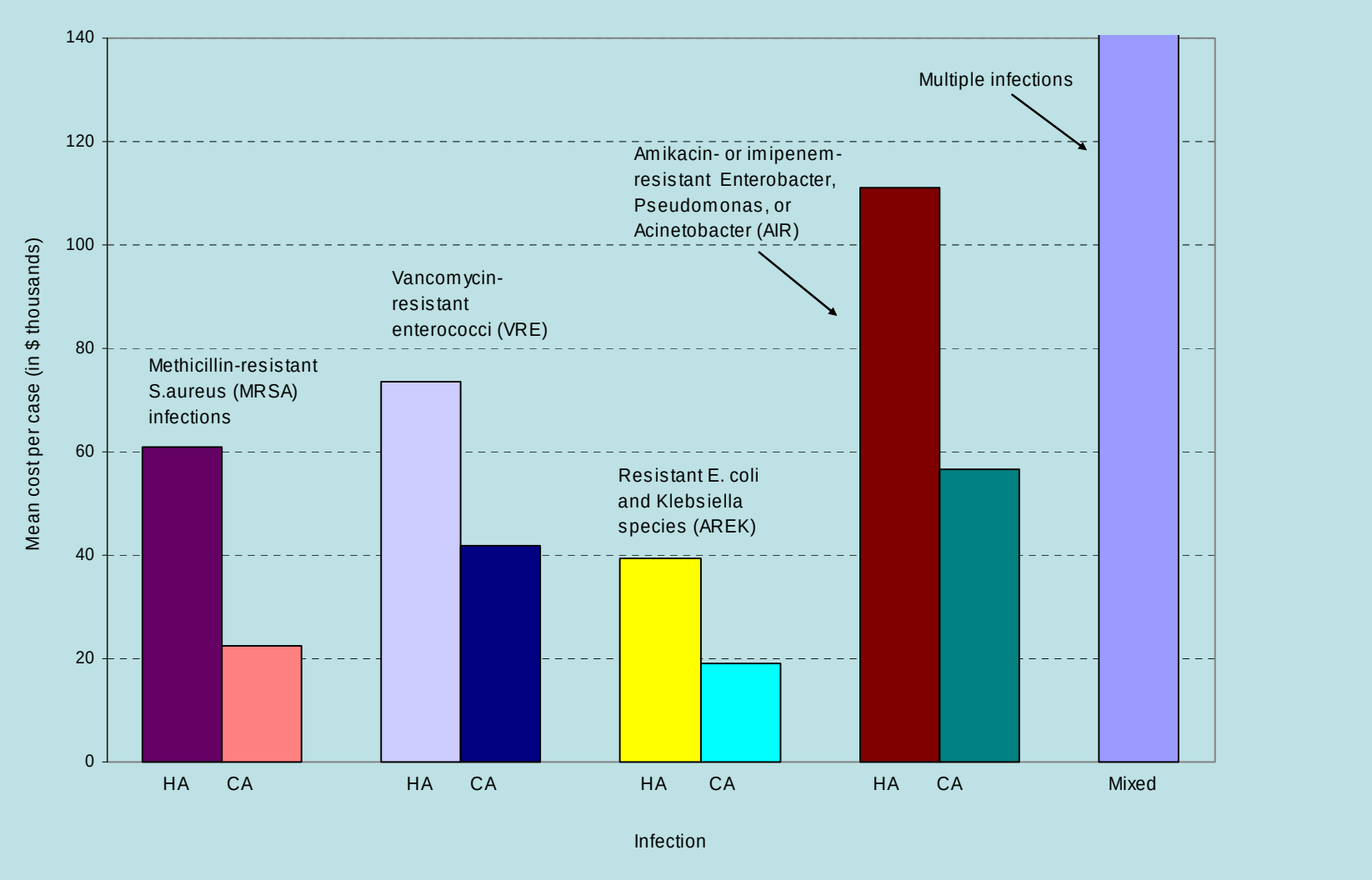
Source: RR Roberts et al, CID 2009:49, 1175-1184 (15 October 2009)

Source: Massachusetts Hospital Discharge Database, Division of Healthcare Finance and Policy, 2000-2007

Average LOS and charge per discharge (inflation adjusted) for drug-resistant infections and drug-susceptible infections in Massachusetts, 2000-2007



Costs of different infections: Chicago Cook County Stronger Memorial Hospital



What does resistance add to costs?

Pathogen	Susceptible	Resistant	Difference
ESBL (Schwaber MJ, Antimicrob Agents Chemother 2006)	$16,877 LOS 5 days Mortality 35%	$46,970 LOS 11 days Mortality 18%	Cost: 2.78 times LOS: 2.2 times Mortality: 1.94 times
P. aeruginosa (Harris A et al, CID 1999)	$22,116	$54,081	Cost: 2.44 times
Various pathogens, Massachusetts, 2007	$15,104 LOS 4.7 days	$25, 380 LOS 9 days	Cost: 1.9 times LOS: 1.7 times

Source: cited in Slama TG, Critical Care 2008, 12(suppl 4):S4 and author's data from Massachusetts Hospital Discharge Database.

The US cost burden

- Extrapolating to the US on the basis of the Chicago data:
- In 2000, there were 900,000 admissions with same criteria as used in study
- Applying costs found at Cook County gives $16.6 - 26 billion additional healthcare costs (year 2000 costs)
- Updating the figure to 2009 costs gives approximately $21 - $34 billion using the US Consumer Price Index (CPI)

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Impact of MRSA on individuals

- *“It has destroyed my life. I cannot use my pool, maintain my house, earn a living, go anywhere for more than a few hours, and I've had to give away 4 of my beloved birds. It is DEVASTATING! I can only stand for a few minutes at a time (I had a hip replacement that got infected and I currently have NO left hip.) I no longer go anywhere and have become a burden on my family. I hate my life.”* – 59 year old woman

Reported out of pocket expenditures by MRSA patients *(preliminary data)*

MRSA patients spent on average **$2251:**

Cost Item	Mean ($)	Median ($)
Outpatient visits (incl. co-pays)	588	222
Prescription drugs	222	100
Hospital stay	536	0
Wound care supplies	212	50
Non-prescription drugs	53	12
Home medical care	603	0
Mental health care	37	0

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What we will pay later….

- loss of drug effectiveness
- Costs of developing new drugs for those that no longer work – IF we can find a company to do it!
  - Estimates around $1 bn (controversial!)
- Possible loss of therapies for certain diseases and pathogens
  - UNTREATABLE infections
- Will we be willing to incur the risk of AMR for elective surgery and procedures?

Conclusion

- AMR is already imposing a big burden
  - Doubling of LOS, more than doubling of costs per hospital admission
  - Large but unmeasured cost burden for patients themselves
- The biggest costs are yet to come
  - Deaths due to untreatable infections
  - Cancelled elective procedures – the risk is too great
  - Loss of confidence in health services, and providers

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