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Funding Trauma Centers: Using the Bardach Framework to Develop a Rational Policy

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- In this lecture, we'll look at another strategy for reducing the burden of injury and assuring optimal care to those injured
 - Tertiary prevention strategy
 - ▶ Doesn't prevent injury-causing event or injury
 - ▶ Response to and treatment of injuries
- Optimal strategy—systems approach to delivering care



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Section A

Trauma Centers and Trauma Systems: Some Background

Distribution of Trauma Deaths

- 50% occur at the scene or in transport
- 30% occur within the first few hours
- 20% occur later—within days or weeks



**Prevention
is key !**

What Is a Trauma Center?

- Specialty referral center designed, equipped, and staffed to provide immediate and definitive care to the most seriously injured
- Part of an overall systems approach to care
 - Established criteria for pre-hospital triage and inter-hospital transfer
 - Integration of components to ensure rapid discovery and transport to definitive care within the “golden hour”

Trauma Center vs. Non-trauma Center

- Above and beyond the resources and facilities:
 - 24/7 availability of these resources
 - Team approach—multiple specialties
 - Commitment to trauma care
 - Volume of major trauma cases
 - Research, education, system leadership

How Are Trauma Centers Identified?

- In 36 states with formal systems, TCs are designated by a lead agency
- In states without formal systems, hospitals can voluntarily seek verification by the American College of Surgeons (ACS)
- Centers are categorized by level of resources available

Trauma Centers: Level of Care

- Levels I and II provide comprehensive trauma care; level I serves as a regional resource and provides leadership in education, research, and system planning
- Levels III, IV, and V provide prompt assessment, resuscitation, and stabilization with transfer to Level I or II as needed; serve communities that do not have immediate access to a Level I or II

Access to Trauma Centers

- 69% of US citizens live within 45 minutes of a trauma center

Percent of population living within 45 minutes of a trauma center

Urban 89%

Suburban 73%

Rural 8%

Source: Branas, MacKenzie, Williams, et al. (June 6, 2005). Journal of the American Medical Association.

Trauma Systems Are Effective

- Two national studies
 - Population-based study examined motor vehicle crash fatality rates before and after implementation of a trauma system in 21 states
 - Cohort study compared case-fatality rates among patients treated in trauma centers versus non-trauma centers

Step 1: The Problem(s)

- Access to trauma centers is not uniform; particularly poor in rural U.S.
- Access does not translate into appropriate use—in states with well-established systems in place, one-third of major trauma patients are not getting to trauma centers

Step 1: The Problem

- Trauma centers are closing or reducing their level of care—across the U.S. and here in Maryland

The Problem—Nationally

- Las Vegas Sun
 - “Malpractice woes may force Nevada trauma center to limit hours as of March 12”
- Orlando Sentinel
 - “Malpractice crisis threatens level I trauma center . . . a distinct possibility that hospital will not have enough on-call physicians to maintain its center”
- Kansas City Star
 - “Mo. system strained by impending closure of St. Joseph’s trauma center . . . it’s going to fill up other hospitals in a domino effect”

The Problem—Nationally

- Between 2002 and 2005
 - 18 level I and II centers closed
 - 14 reduced their level of care to level III or IV
 - 70+ reported their viability was threatened

The Problem in Maryland

- In June of 2002, Washington County in Hagerstown was forced to suspend its trauma program
- Reopened in October 2002, but downgraded from a level II to a level III
- Peninsula Regional Medical Center in Salisbury threatened
- Study panel appointed by Maryland General Assembly to study the problem and make recommendations



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Section B

Assembling the Evidence

Step 2: Assemble the Evidence

- So what
 - What's the impact?
- Why are they closing?

The Potential Impact

- Percentage of population living within 45 minutes of any level I/II trauma center

	With TC	Without TC
Maryland—Washington County	90%	86%
Las Vegas	86%	17%
Orlando	78%	69%
Kansas City	65%	65%

The Potential Impact

- Based on a study of trauma center effectiveness . . .
 - For every 100 major trauma patients who are treated at a trauma center versus non-trauma center, we can expect to save 3–4 lives

Contributing Factors—News Stories

General lack of funds	16%
Hospital reimbursement	12%
High patient volumes	11%
Physician availability —General trauma surgeons —Orthopedic surgeons —Neurosurgeons	61%

Step 1: Redefining the Problem

- The short- and long-term viability of trauma systems is threatened by waning participation of physicians in taking care of trauma patients
 - Poor lifestyle; workload is increasing
 - Profession is changing—less surgery
 - Trauma surgeons not adequately paid for services
- Each must be addressed to solve the problem

Financial Burden on Physicians

- Identified as most serious problem facing Maryland trauma system
 - Uncompensated care and under-compensated care
 - Lost revenue due to taking trauma calls
 - Rising malpractice premiums (less of a current threat in Maryland)

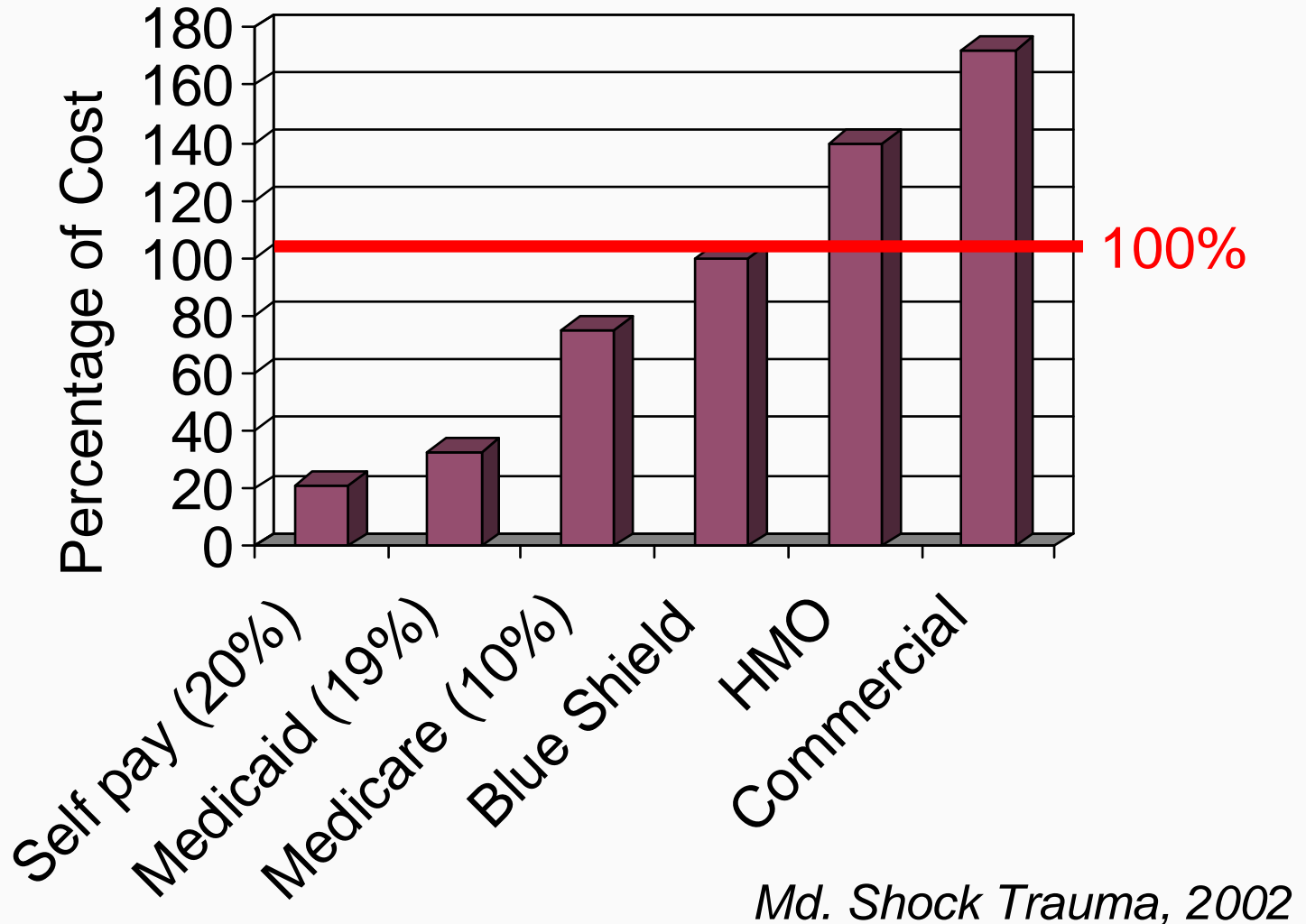
Under-compensated and Uncompensated Care

- Payer mix at Maryland trauma centers

	All Maryland trauma centers
Self pay	25%
Medicaid	10%
Medicare	10%
Commercial	50%
Other*	5%

**Other includes workers' comp and auto insurance*

Percentage of Physician Cost Paid by Payer



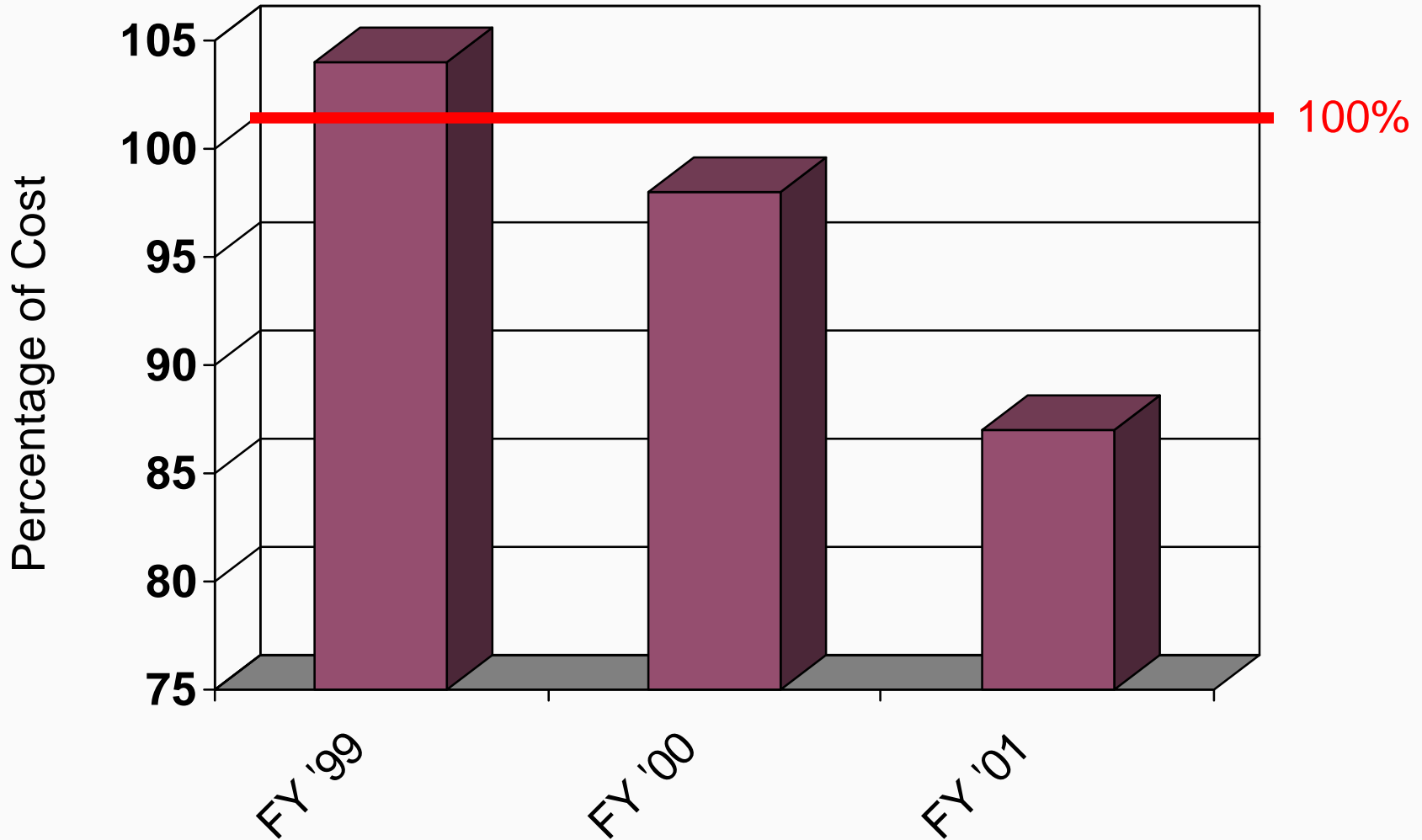
Underpayment of Trauma Physicians

- Underpayment of trauma physicians—Maryland Shock Trauma FY 2002

	% Total charges	Est. cost (in 000s)	Actual collections	Deficit
Uninsured	20%	\$2,395	\$455	\$(1,941)
Medicaid	19%	\$2,274	\$674	\$(1,600)
Medicare	10%	\$1,218	\$996	\$(222)
Commercial/ HMO	51%	\$6,131	\$8,580	\$2,449
TOTAL	100%	\$12,018	\$10,704	\$(1,314)

Source: Scalea. (2003).

Physician Reimbursement: Percentage of Cost



Lost Revenue Due to Taking Call

- Most physicians in level II and Level III trauma centers have private surgical practices that incur economic losses when they take a trauma call
 - Unable to see regular patients or perform elective surgeries when on call
 - Forced to reschedule or postpone elective cases when trauma cases spill over into regular surgical schedules

Additional Cost to Trauma Center

- Trauma centers forced to subsidize physician income—through on-call stipends—to ensure adequate coverage
- Stipends cost individual trauma centers between \$462,000 and \$876,000 annually
- Federal law prohibits including provider reimbursement or professional fees in hospital rates, so trauma centers must rely on their operating margins to cover these expenses

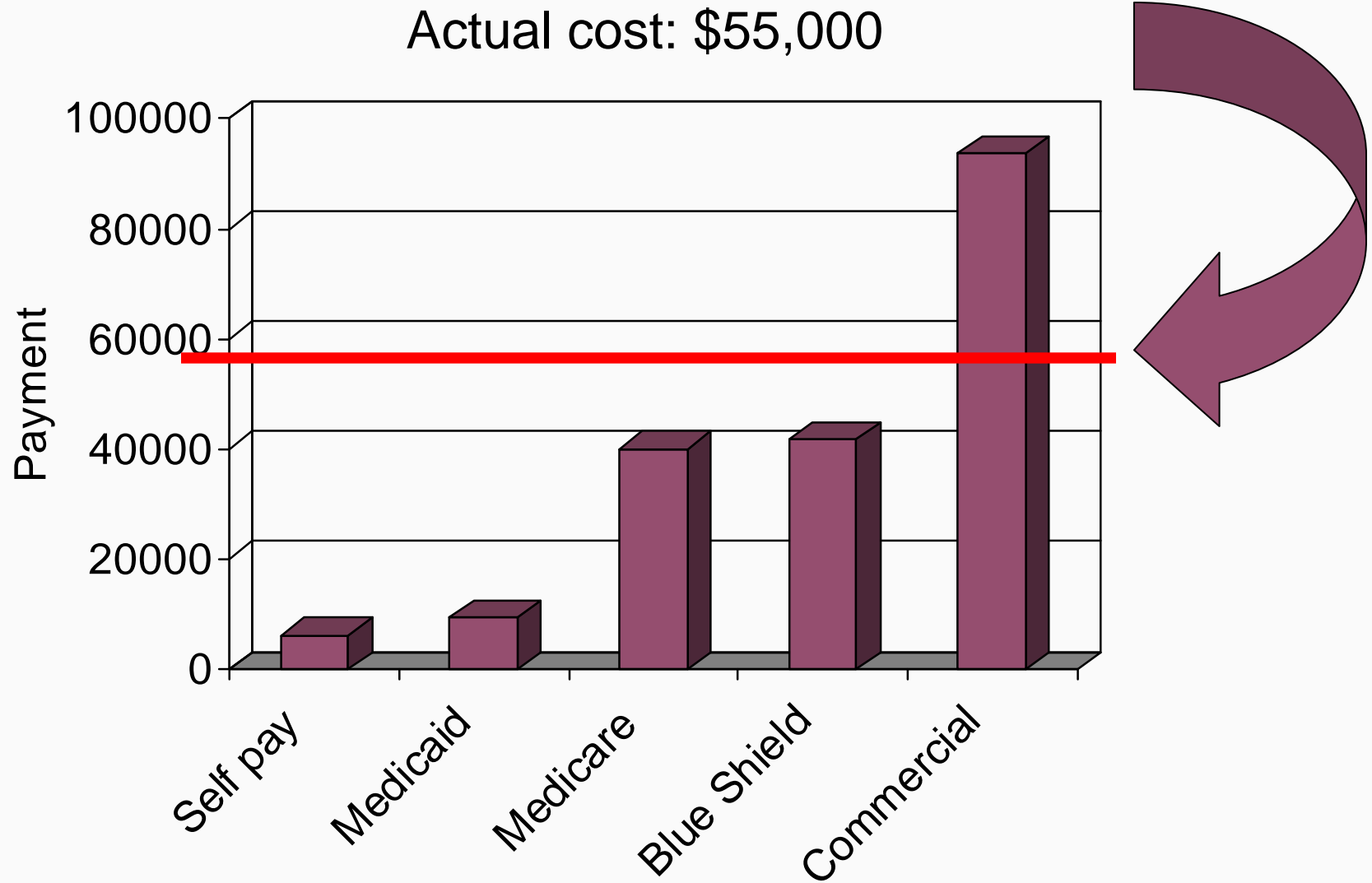
The Problem: A Summary

- Trauma centers are closing
 - Impact access to quality trauma care
- Principal reason
 - Lack of physician coverage
- Physicians less likely to take trauma call because their costs are not adequately covered
- Physician costs are not covered due to
 - Uncompensated care
 - Under-compensated care
 - Lost revenue due to taking call
 - High malpractice premiums

Convincing the Decision Makers

- Putting a face on the problem is key!
 - A 24-year-old, UNINSURED male was admitted to Shock Trauma after a motorcycle crash
 - Injuries included multiple leg fractures, head trauma, and an abdominal wound
 - After multiple trips to the operating room, and 65 days in the trauma center, he was discharged to inpatient rehab

Professional Fee Reimbursement





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Section C

Constructing the Alternatives and
Making a Decision

Step 3: Construct the Alternatives

- Two layers of decisions
 - How to solve the problem?
 - How to finance the solution?

Alternative Solutions

- Reduce amount of uncompensated care (e.g., universal health insurance; expand Medicaid eligibility criteria)
- Increase reimbursement rates for trauma care (e.g., increase Medicaid from 33% to 100% of Medicare)
- Pay physicians for on-call coverage

The Solution

- The Maryland Trauma Physician Services Fund
 - Pay trauma physicians for uncompensated and under-compensated care
 - Grants to trauma centers to cover physician on-call costs
- ***How to finance the solution? . . .***


Step 3: Construct the Alternatives

- Alcohol tax: proposed in Calif., Ore.
- Motor vehicle fees: Md., Wash.
- Traffic fines: Miss., Wash., Ill., Tex.
- DUI/DWI convictions: Ill., Calif., N.C.
- Firearms tax/violations: Ill, Calif.
- Gas tax: None
- Property/sales/cigarette tax: Calif., Ariz.


Step 4: Select the Criteria

- Efficient
 - Will it produce sufficient resources at low administration cost?
- Dependable
 - Large stable tax base; are there other competing uses of the funds?
- Flexible
 - Easily changed if more revenue needed
- Equitable
 - Is the cost spread over all potential users of the service?
- Politically acceptable
 - Is re-election possible?
- Population benefit
 - Is there a health benefit associated with tax?


Step 5: Project the Outcomes

	Alcohol tax	Motor vehicle registration	Traffic court fees	Gas tax
Efficient				
Flexible				
Dependable				
Equitable				
Politically acceptable				
Population health benefit				
\$20 million 	\$0.20 per gallon	\$5.00 per registration	\$25.00 per case	\$0.01 per gallon

Step 5: Project the Outcomes

	Alcohol tax	Motor vehicle registration	Traffic court fees	Gas tax
Efficient	++	+++	+	+++
Flexible	++	++	+	+
Dependable	++	+++	+	+
Equitable	++	+++	++	+++
Politically acceptable	0	+++	++	0
Population health benefit	++	0	0	+?
\$20 million 	\$0.20 per gallon	\$5.00 per registration	\$25.00 per case	\$0.01 per gallon

Step 5: Project the Outcomes

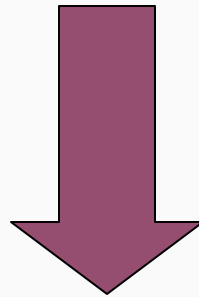
	Alcohol tax	Motor vehicle registration	Traffic court fees	Gas tax
Efficient	++	+++	+	+++
Flexible	++	++	+	+
Dependable	++	+++	+	+
Equitable	++	+++	++	+++
Politically acceptable	0	+++	++	0
Population health benefit	++	0	0	+?
\$20 million 	\$0.20 per gallon	\$5.00 per registration	\$25.00 per case	\$0.01 per gallon

Step 6: Confront the Trade-offs

- Any we would eliminate?
- One alternative clearly dominant?
- Which criterion is most important?

Step 7: Making the Decision

- Increase MV registration fee by \$2.00
- Increase alcohol tax by \$0.05 per gallon
- Increase traffic court fee by \$10.00



Increase MV registration fee by \$5.00

- Maryland is a special case
- Only 12 states currently provide additional funding for trauma centers
- How to convince other states that trauma systems and trauma centers should be considered a public good?
- Focus groups with key legislative aids and state officials
- Development of a “tool kit” for decision makers