

**Joint Legislative Audit and Review Commission  
of the Virginia General Assembly**



**The Use and Financing of  
Trauma Centers in Virginia**

**Staff Briefing  
Nathalie Molliet-Ribet  
November 8, 2004**

# **JLARC Staff**

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# Presentation Outline

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- Background**
- Access to Trauma Centers in Virginia**
- Challenges Faced by Virginia Physicians Providing Trauma Care**
- Financial Challenges Faced by Trauma Centers in Virginia**
- Potential Sources of Funding**

# Study Mandate

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- **House Joint Resolution 183 (2004) directs JLARC to review the use and financing of trauma centers in the Commonwealth of Virginia**
  
- **The resolution specifically directs staff to examine:**
  - **The volume and characteristics of trauma patients in Virginia and the nation**
  - **The costs and benefits of being a designated trauma center**
  - **Steps that can be taken to maintain appropriate and necessary trauma services in Virginia**

# Study Issues

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- **Do Virginians currently have adequate access to trauma centers?**
- **What are the challenges faced by physicians providing trauma care that could compromise future access to trauma centers?**
- **What are the challenges faced by trauma centers?**
- **What steps can be taken to promote continued access to trauma care for all Virginians?**

# Research Activities

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- **Structured Interviews and Site Visits**
- **Surveys**
  - **Trauma Program Coordinators**
  - **EMS Regional Directors**
- **Technical Advisory Panel**
- **Financial Analysis**
- **Spatial Analysis**
- **Literature Review**

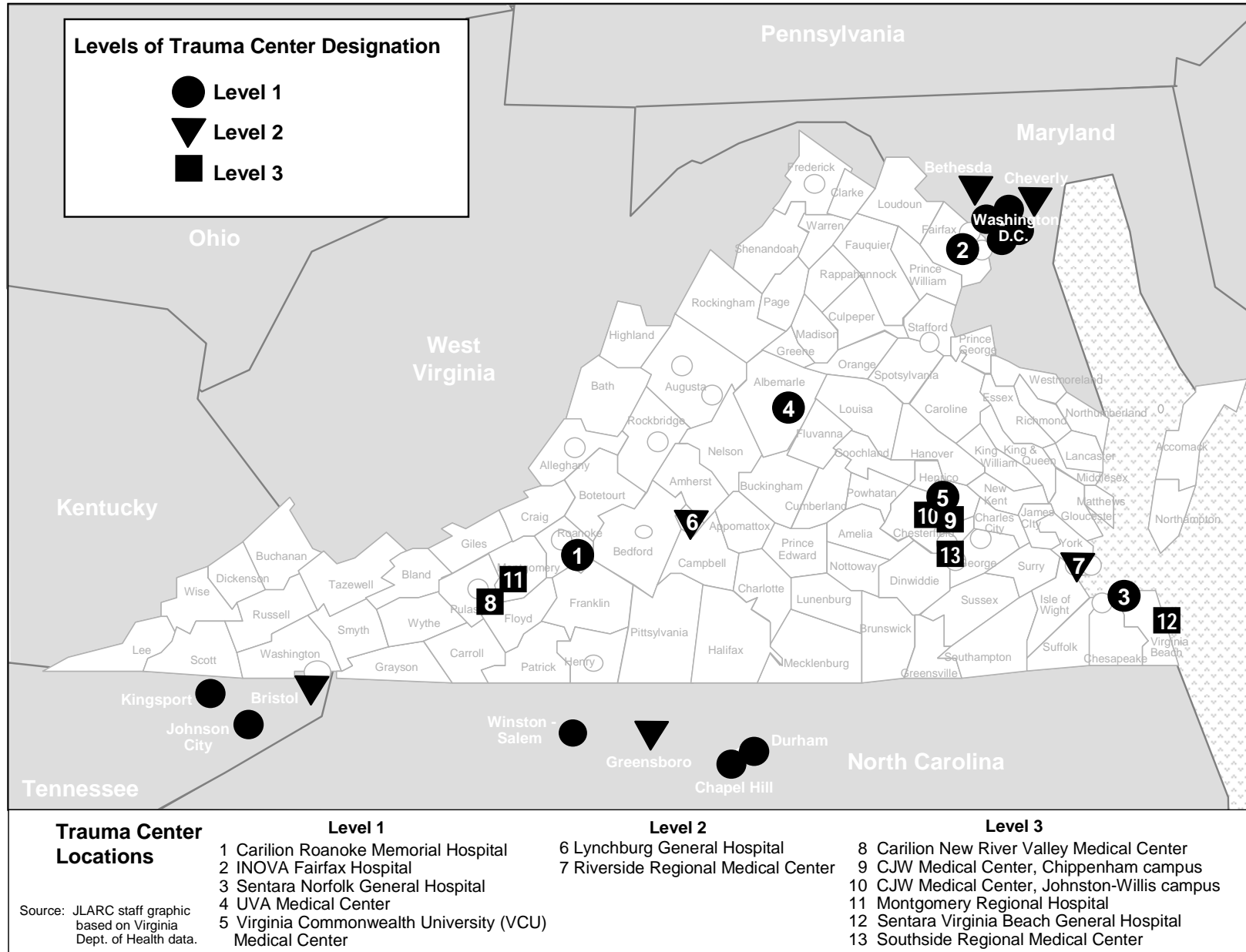
# Profile of Virginia Trauma Patients (2002)

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- **More than 20,000 Virginians visited a hospital as a result of traumatic injuries**
- **Motor vehicle crashes and falls accounted for 75 percent of traumatic injuries**
- **Sixty percent of trauma patients were males**
- **Sixty percent of trauma patients were under the age of 45**
- **Two-thirds of trauma patients visited one of the 13 trauma centers in Virginia**

# Locations and Designation Levels of Trauma Centers Serving Virginians



# Trauma Centers Reduce Mortality and Disability Caused by Injuries

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- **Trauma centers offer faster and more specialized care than other hospitals**
  - Coordinated trauma system spanning continuum of care
  - Prompt access to experts in all aspects of injury
  - Specialized equipment
  
- **When injuries are serious, access to trauma centers can make a significant difference in the patient's health outcomes**
  - Studies have repeatedly shown a 20 to 40 percent reduction in preventable deaths when patients are treated in a trauma center instead of a community hospital
  - Trauma centers mitigate the economic impact of injury by allowing individuals to return to productive lives faster

# Trauma Centers Benefit All Virginians Through Injury Prevention and Disaster Preparedness

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- **Trauma centers also focus on decreasing the occurrence of injuries by conducting research, injury prevention programs, and community outreach**
  - “Reality Check” program focuses on teen drinking and driving
  - “Kids Can’t Fly” program educates parents and children on window safety
  
- **Trauma centers are a critical element of emergency preparedness and response planning**
  - Trauma centers are best positioned to handle mass casualties because of their expertise in coordination and in the treatment of severe injuries
  - All central command hospitals in the event of a mass casualty emergency are designated trauma centers

**(Trauma Centers Video)**

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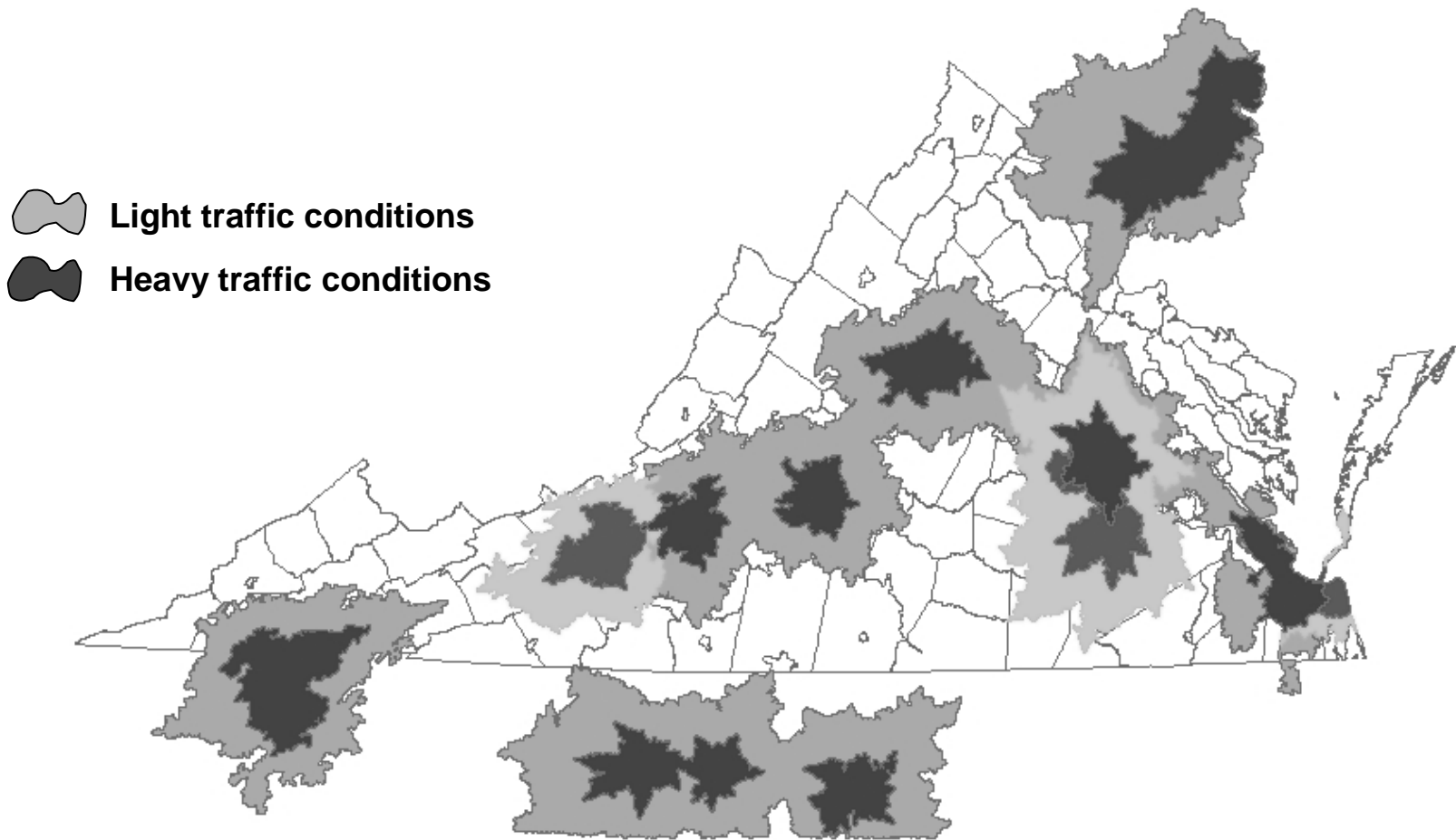
## **Many Virginians Lack Prompt Access to a Trauma Center**



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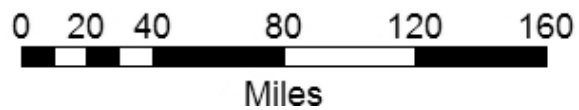
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- **Seriously injured trauma patients are less likely to die or become disabled if they are treated within one hour of their injury**
- **Approximately 20 percent of seriously injured trauma patients did not arrive at a hospital within one hour after injury in 2002**
- **Depending upon traffic conditions, between 20 and 40 percent of major trauma victims in Virginia could not be transported to a trauma center within one hour after their injury**

# One-Hour Service Area of Trauma Centers via Ground Transportation



-  Light traffic conditions
-  Heavy traffic conditions



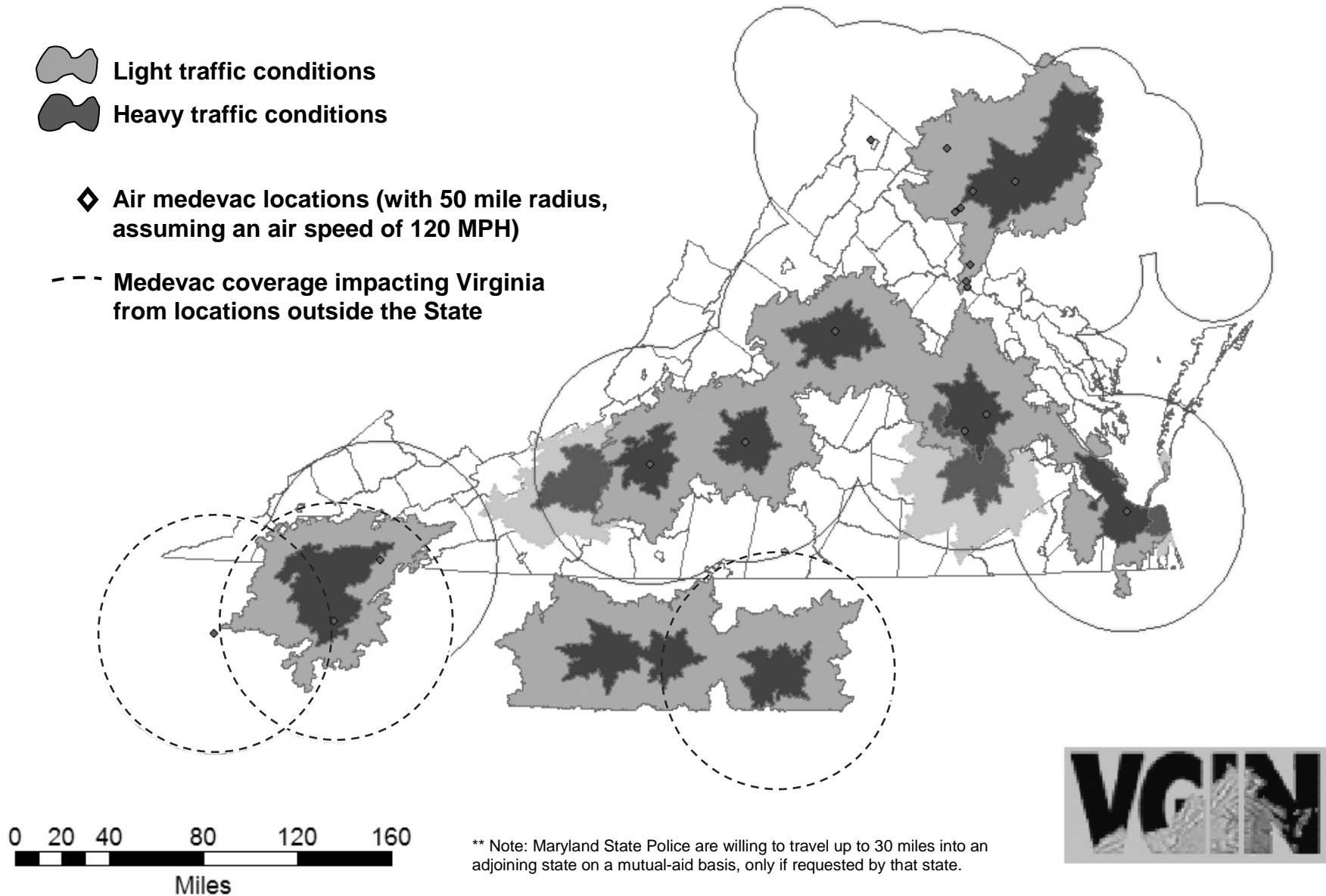
# **Air Medevac Transportation Enhances Access to Trauma Centers**

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- **Air medevac services increase the availability of trauma services in the State:**
  - **Almost all regions in the State have access to trauma center services within one hour**
  - **Some areas of the State rely on air medevac services of neighboring states**
  
- **Air medevac services may not always be available or utilized to transport trauma patients:**
  - **Inclement weather conditions may prevent air missions**
  - **Medical direction may be needed prior to call for air transportation**
  
- **Southwest and Western EMS regions experience fewer air transports of trauma patients**

# One-Hour Service Area of Trauma Centers via Ground and Air Transportation



# **Additional Trauma Centers May Be Needed in Certain Regions of the State**

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- **The factor most frequently cited by EMS agencies as a barrier to prompt transport is the distance to the nearest trauma center**
  
- **EMS regional directors identified several areas with enough trauma victims to justify having a trauma center:**
  - **Cities of Winchester, Danville, and Fredericksburg**
  - **Counties of Henrico or Hanover and Orange**
  - **Northern Neck and Peninsulas regions**
  - **Upgrade to level II designation in Radford**
  
- **An analysis of the rate of major trauma supports the need for additional trauma centers in most locations cited by EMS regional directors**

# **Few Community Hospitals Are Willing to Seek Trauma Center Designation**

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- **Despite the potential need for additional trauma centers in certain areas of the State, only Winchester Medical Center is pursuing trauma center designation**
- **Community hospitals that treat a large volume of trauma patients want to offer the best possible trauma care, but the staffing and financial challenges faced by trauma centers deter them from seeking designation**
- **Community hospitals fulfill a very important role in caring for trauma patients in underserved areas, but they cannot consistently provide the same level of care as trauma centers**

# Virginia Trauma Patients Are not Consistently Treated in the Proper Medical Setting

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- **Nearly one-third of critically injured patients were transported to community hospitals**
  - Only 35 percent of these patients were subsequently transferred to a trauma center
  - Under-triage can lead to suboptimal patient outcomes
  
- **Almost half of moderately injured trauma patients were treated in level I trauma centers**
  - Over-triage can lead to inefficiencies

# **The Effectiveness of Triage Protocols Is not Monitored in Virginia**

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- **Although trauma triage protocols were adopted by the State in 1997, the level of over- and under-triage may have increased**
- **Trauma center staff and EMS regional directors generally believe that triage protocols are effective and that most community hospitals have the resources to transfer major trauma patients**
- **Flexibility in triage protocols, provider education, and community hospital resources may affect trauma triage effectiveness**
- **Despite the requirements laid out in the *Code of Virginia*, the Office of Emergency Medical Services (OEMS) does not currently coordinate, measure the effectiveness of, or promote compliance with triage protocols throughout the State**

# Recommendations

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- **The Office of Emergency Medical Services (OEMS) should analyze and promote compliance with regional trauma triage protocols to ensure that the protocols are working properly and that trauma patients are being transported to the appropriate facilities. In addition, reports on triage performance should be shared with the EMS regions.**
- **The Office of Emergency Medical Services (OEMS) should link the pre-hospital patient care reporting database (PPCR) to the State Trauma Registry database to develop a more comprehensive database that could be used to improve the effectiveness of the entire trauma system.**

# **Patient Outcomes May Be Compromised if Challenges Faced by the Trauma System Are not Addressed**

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- **The downgrade in level or loss of designation of any of the State's trauma centers, particularly levels I and II, would leave major population areas without access to trauma care for the seriously injured**
- **The issues that have resulted in the downgrade or loss of designation of dozens of trauma centers across the nation are similar to those faced by the trauma system in Virginia**
- **Staffing and financial challenges have already contributed to the downgrade in designation level of Virginia Beach General Hospital in 2003, and to the near-downgrade of Roanoke Memorial Hospital in 2002**

# Presentation Outline

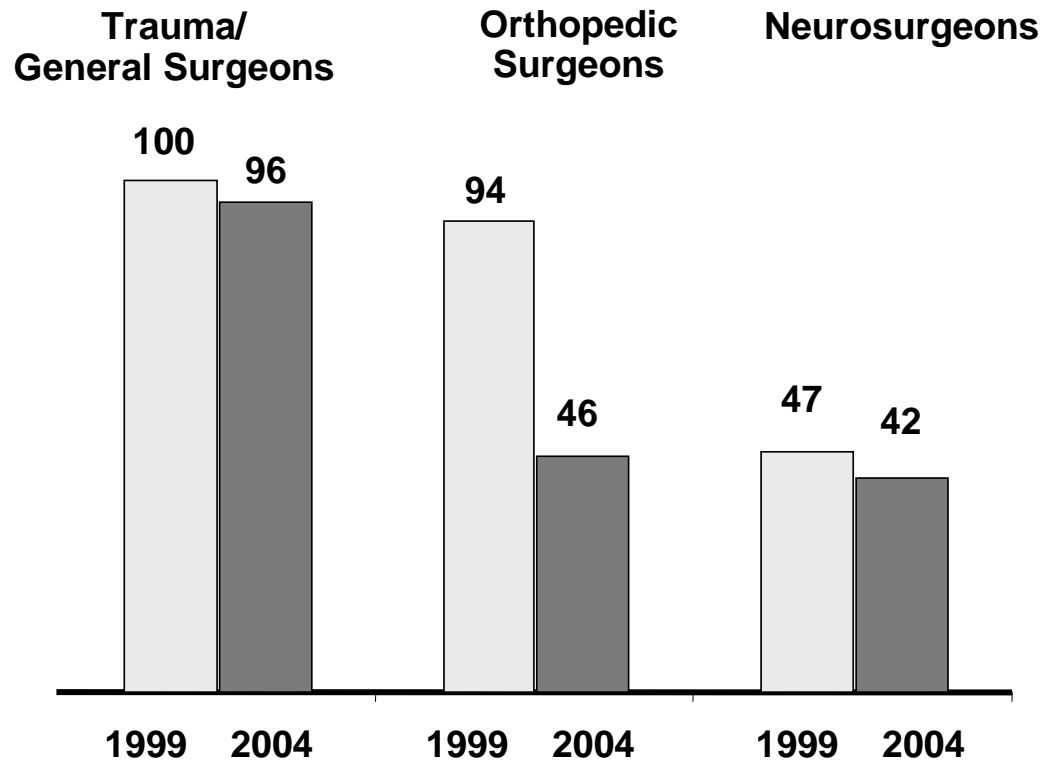
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- Access to Trauma Centers in Virginia
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- Financial Challenges Faced by Trauma Centers in Virginia
- Potential Sources of Funding

# Securing Adequate Physician Coverage Is the Most Critical Issue Threatening Access to Trauma Care in Virginia

**Number of Surgeons  
Available to Be on Trauma Call at  
Trauma Centers in 2004 Compared to 1999**



# Trauma Centers Have Taken Steps to Increase Physician Availability

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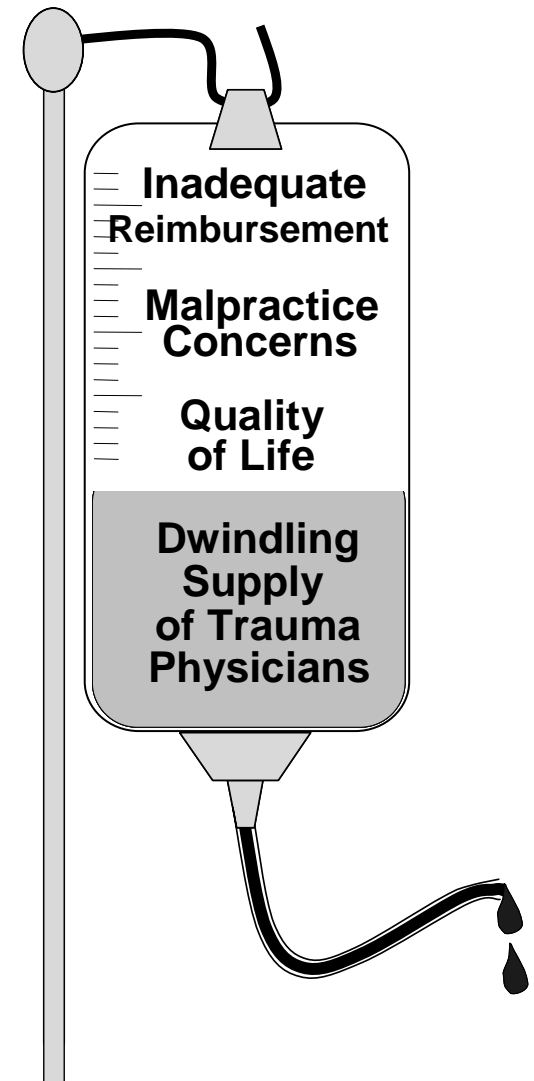
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- **Trauma centers have hired physicians who must be available for trauma call as a condition of employment**
  - 67 percent of physicians remain privately employed
  
- **Trauma centers are increasingly paying private physicians a stipend for being on-call**
  - 58 percent of private physicians receive a stipend to be available for call
  - Stipends range from \$200 to \$2,000 per 24-hour period

# Providing Trauma Care Has Become Less Attractive to Physicians

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- **The declining number of physicians willing to be on trauma call does not appear to be related to physician availability, but rather to physician willingness**
  - There does not appear to be a shortage of new physicians who could provide trauma care
  
- **Physicians are less inclined to put their private practices on hold to treat trauma patients due to:**
  - Declining reimbursements
  - Rising medical malpractice insurance premiums
  - Quality-of-life sacrifices



# Physician Reimbursement for Providing Trauma Care Is Inadequate

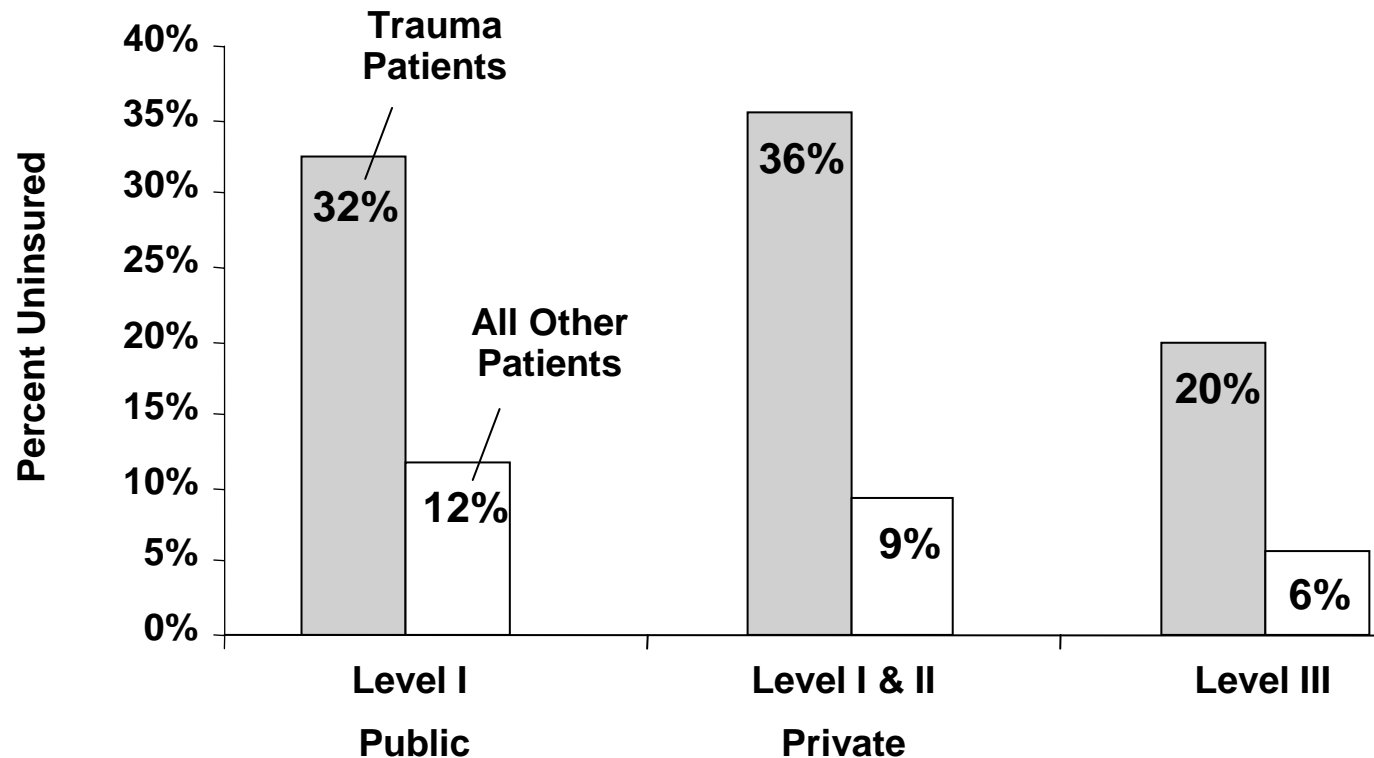
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- **One of the primary reasons why physicians are unwilling to provide care for trauma patients is inadequate reimbursement**
  
- **Inadequate reimbursement issues largely stem from the following:**
  - **Trauma patients are disproportionately uninsured**
  - **Medicare and Medicaid reimbursement rates have not kept pace with inflation**
  - **There is an opportunity cost to being on trauma call, which is the time physicians could have devoted to their private practices where reimbursement rates are typically higher**

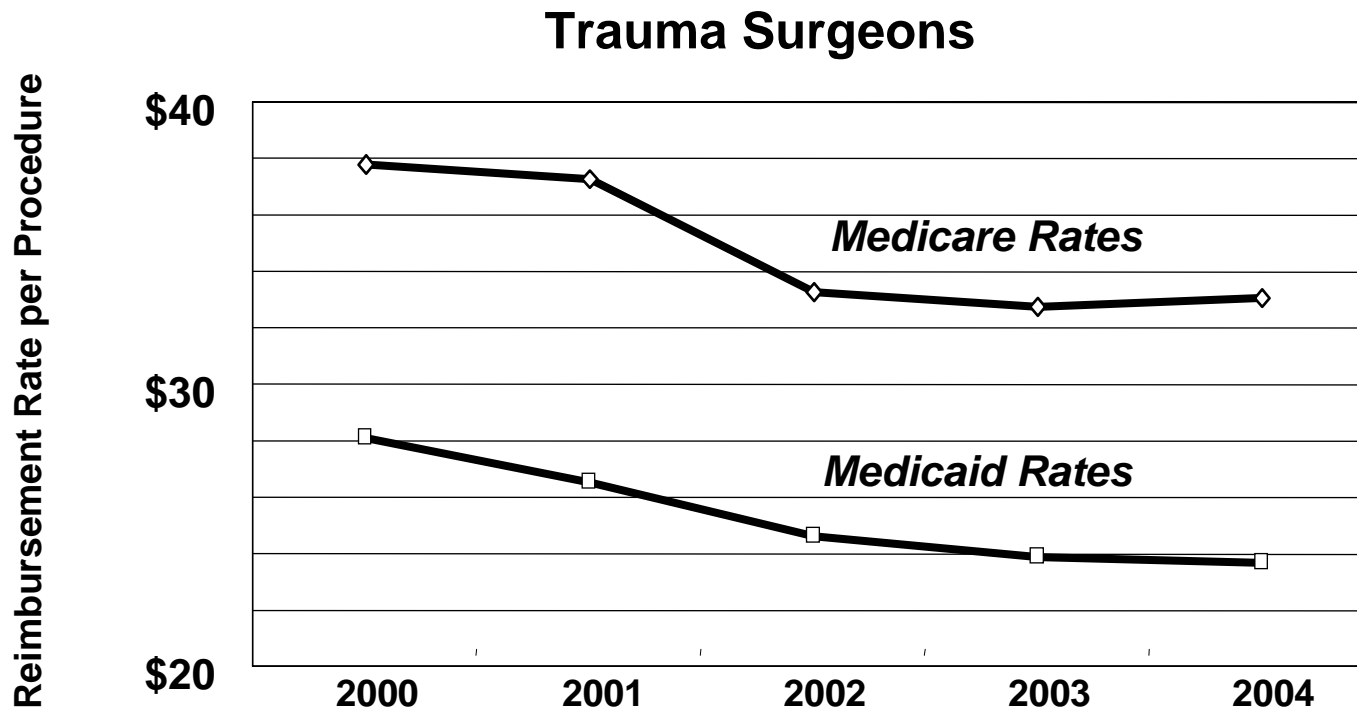
# Trauma Patients Are Disproportionately Uninsured

**Comparison of the Percentage Uninsured  
Between Trauma Patients and Other Patients  
(2003)**



# Physician Reimbursements from Public Payors Have not Kept Pace with Inflation

Average Inflation-Adjusted Medicare and Medicaid Rates  
for Most Frequently Performed Trauma Procedures



# Trauma Disrupts Private Practices for Which Reimbursement Rates Are Higher

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- **Trauma disrupts a physician's private practice**
  - Time spent responding to trauma calls
  - Additional training requirements
  
- **The more time spent away from their practices, the more likely it is that physicians will have to reschedule or forgo elective surgeries**
  - Patients scheduling elective surgeries typically have private health insurance, which reimburses at a higher rate
  - Privately insured patients may cancel their elective surgeries and go elsewhere

# **Some Surgeons Are Unwilling to Treat Trauma Patients Due to Medical Malpractice Insurance Costs**

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- **Rates for several of the largest malpractice insurers in Virginia have increased by a cumulative amount of 115 percent across all physician types over the past decade**
  - **A study commissioned by the Virginia Bureau of Insurance found premiums to be adequate and not excessive**
  
- **Concerns may be more a problem of perception than a reality**
  - **Whether or not treating trauma patients increases a physician's base premium varies by insurance carrier**
  - **Data are not readily available to substantiate whether physicians who are on trauma call are more likely to be subject to litigation**
  
- **Even if concerns over malpractice premiums are based on perception, they appear to impact surgeons' willingness to be on trauma call and may need to be addressed**

# Trauma Physicians Face Quality-of-Life Issues

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- **Because trauma patients take priority, physicians must often rearrange both their personal and professional lives whenever they are needed in the trauma center**
  
- **Quality-of-life concerns appear to be increasing, particularly among new physicians**
  
- **As the number of surgeons available to be on trauma call diminishes, the burden left on the remaining physicians is heavier, making trauma even less attractive**
  - **Today, physicians are on call one more day per month compared to five years ago, on average**

# The State Could Support Virginia Physicians Who Provide Uncompensated Trauma Care

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- Of the challenges faced by trauma physicians, the State could most effectively address the issue of inadequate reimbursements
- The State could reimburse trauma, general, neuro-, and orthopedic surgeons for providing uncompensated care to *trauma patients at designated trauma centers*
- Based on the experience of other states, it is estimated that Virginia's trauma physicians provide an average of \$25,000 of uncompensated care per physician
  - Data indicating the amount of uncompensated care provided by trauma physicians in Virginia are not available

# **Options to Support Trauma Physicians Who Provide Uncompensated Care**

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**Options for addressing uncompensated trauma care provided by Virginia physicians include:**

- **An uncompensated care fund**
- **A tax credit for the provision of uncompensated care**
- **Increased Medicaid rates to alleviate the effect of uncompensated care**

# Supporting Trauma Physicians Through an Uncompensated Care Fund

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Physicians who treat trauma patients in designated trauma centers could offset uncompensated care with payments from a fund

## Advantages

- Direct relationship between amount of uncompensated care provided and benefit received
- Precedent in other states
- Limited financial exposure

## Disadvantages

- 100 percent State funded
- New administrative structure needed
- Size of fund does not vary with need

**Estimated Annual Cost: \$6.0 Million; State Share: \$6.0 Million**

# Supporting Trauma Physicians With a Tax Credit for the Provision of Uncompensated Care

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Physicians who treat trauma patients in designated trauma centers could receive a tax credit for the uncompensated care they provide

## Advantages

- Direct relationship between amount of uncompensated care provided and tax credit
- Existing administrative infrastructure
- Outside of appropriations process

## Disadvantages

- More difficult to monitor and enforce
- Further complicates tax code
- 100 percent State funded
- No limit on financial exposure
- No precedent in other states

**Estimated Annual Cost: \$6.0 Million; State Share: \$6.0 Million**

# Supporting Trauma Physicians by Increasing Medicaid Rates to Offset Uncompensated Care

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**Medicaid Rates could be increased to alleviate the impact of uncompensated care**

## Advantages

- 50 percent federal match
- Existing administrative infrastructure
- No allocation mechanism needed

## Disadvantages

- Volume of Medicaid patients proxy for volume of uninsured patients
- No limit on financial exposure
- Manual process
- No precedent in other states

**Estimated Annual Cost: \$6.0 Million; State Share: \$3.0 Million**

# Trauma Loan Repayment Program

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**Student debt assistance could be offered to physicians who are available to be on trauma call after graduation**

## Advantages

- **Relatively low-cost**
- **Easy to implement**
- **Existing administrative infrastructure**

## Disadvantages

- **Difficult to assess program effectiveness**
- **Likely low impact**
- **Temporary solution**
- **100 percent State funded**

**Estimated Annual Cost: \$0.1 Million per participant;  
State Share: \$0.1 Million per participant**

# Presentation Outline

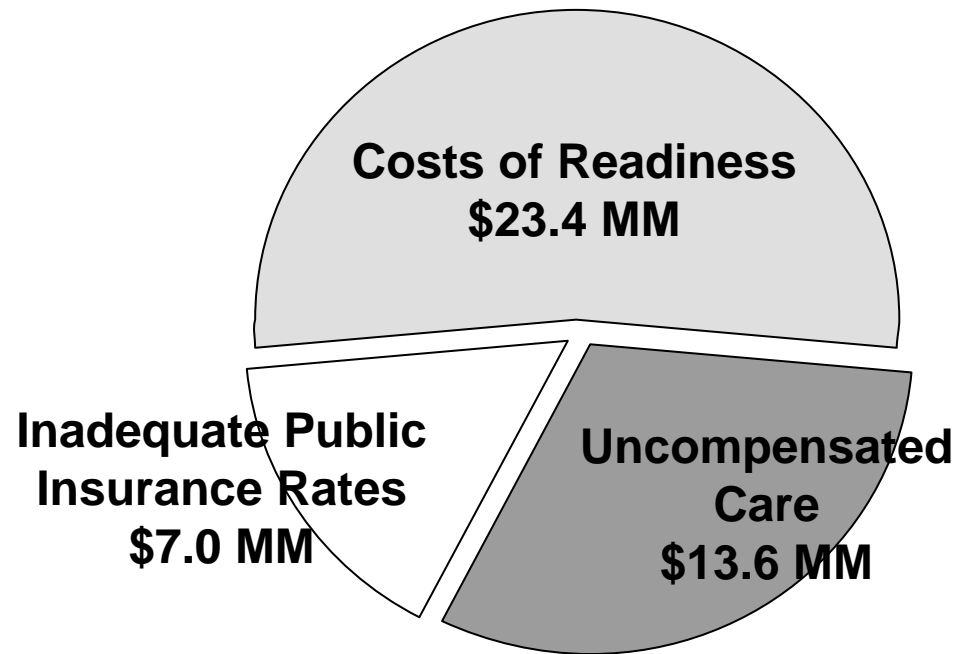
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# Trauma Programs in Virginia Are Generally Unprofitable

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**Total 2003 Losses**  
**\$44.0 Million**

# Trauma Patients Are Disproportionately Uninsured

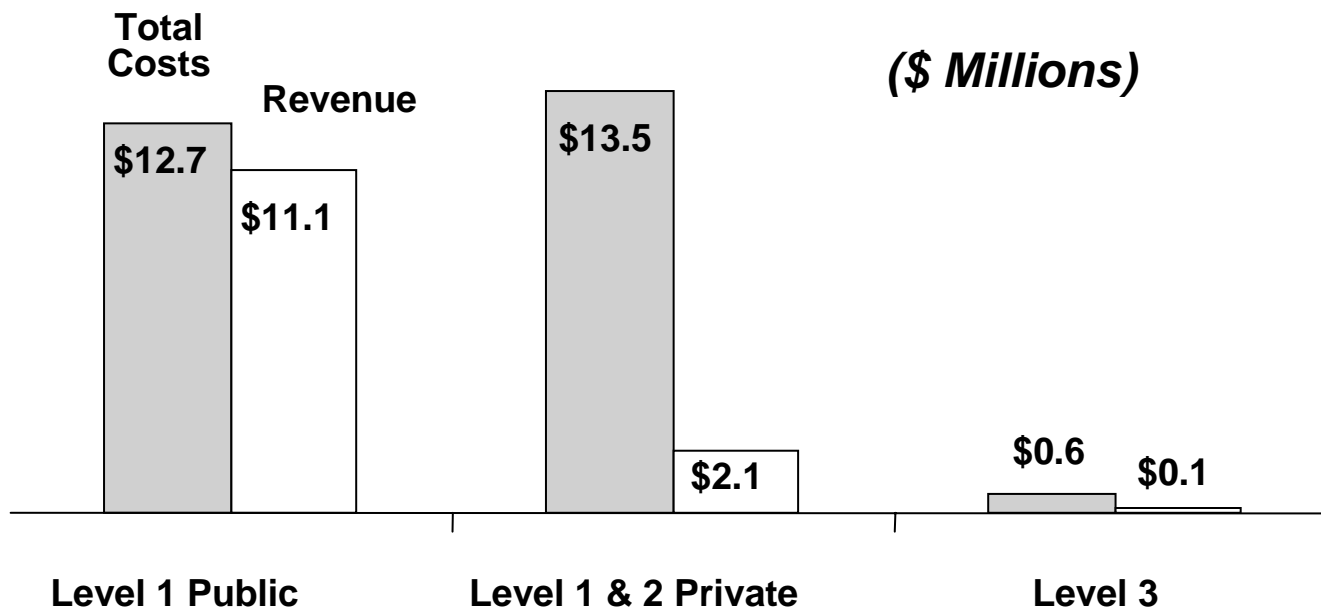
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- **While trauma patients overall are three times as likely to be uninsured as other patients, trauma patients who are admitted for a hospital stay are six times as likely to be uninsured**
  
- **State and federal programs offset a portion of uncompensated care provided to indigent patients**
  - **Non-indigent uninsured patients are not covered**
  - **Private trauma centers receive a fraction of program funding, although they provide more than half of the uncompensated care**

# Private Trauma Centers Experience Greater Losses than Public Trauma Centers for the Treatment of Uninsured Trauma Patients

Cost of Clinical Care and Revenue for Uninsured Trauma Patients (2003)



# Public Insurance Reimbursement Rates Do not Cover Costs Incurred by Private Trauma Centers

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- Public insurers reimburse most trauma centers at approximately 80 percent of the cost of clinical care received by trauma patients
- Private trauma centers receive lower public insurance reimbursements for clinical care than public hospitals

**Percentage of Cost of Clinical Care Reimbursed and Patient Margin by Public Payors (2003)**

|          | Private Trauma Centers |                | Public Trauma Centers |                |
|----------|------------------------|----------------|-----------------------|----------------|
|          | % of Costs Reimbursed  | Patient Margin | % of Costs Reimbursed | Patient Margin |
| Medicaid | 61 %                   | (\$6,230)      | 105 %                 | \$1,141        |
| Medicare | 65 %                   | (\$5,985)      | 93 %                  | (\$1,471)      |

# Opportunities for Cross-Subsidization Are Limited

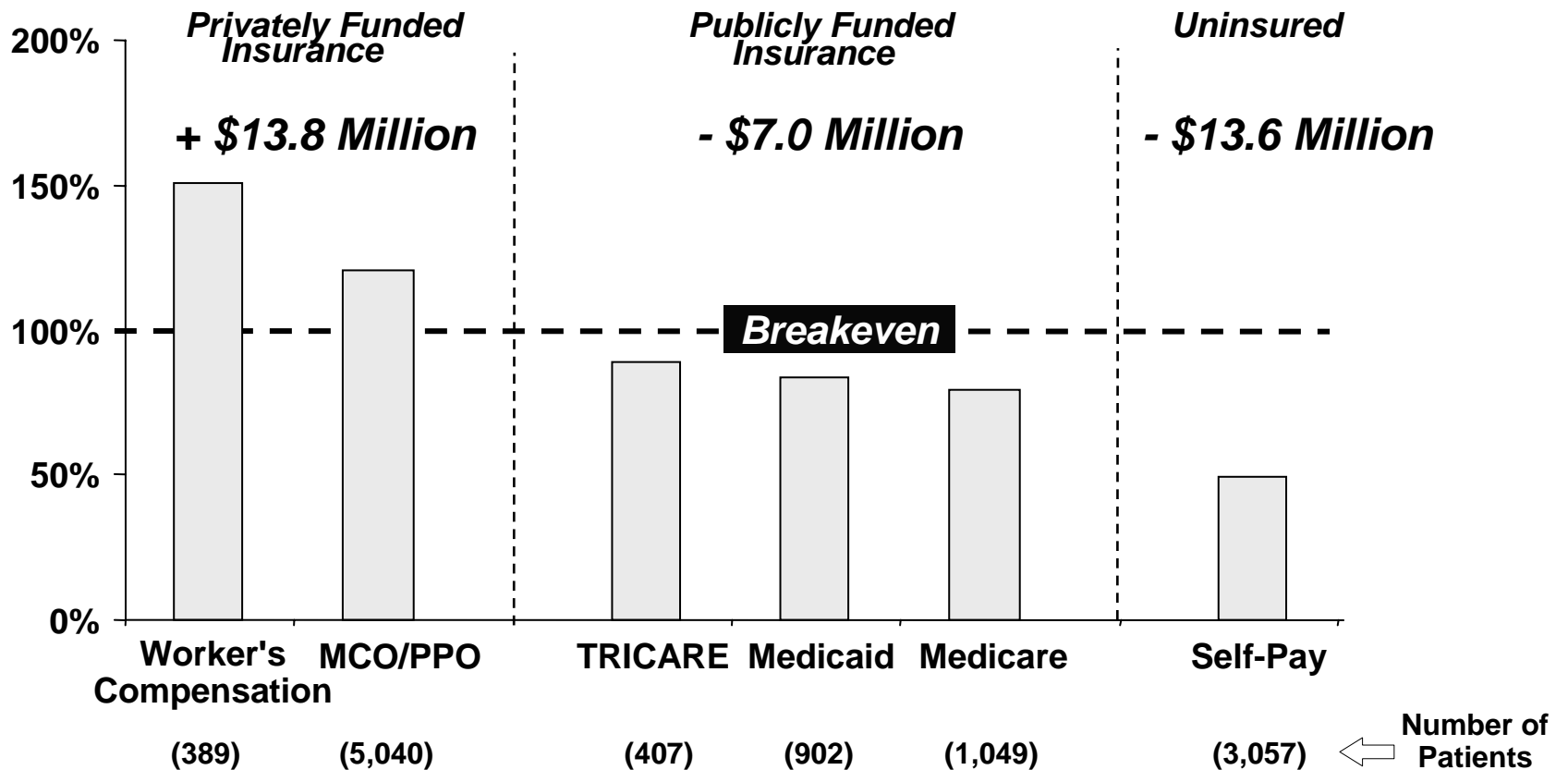
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- Few trauma centers are able to offset the losses that stem from the treatment of publicly insured and uninsured trauma patients with profits realized on privately insured trauma patients
- The proportion of privately insured trauma patients can be as low as 32 percent in levels I and II trauma centers
- Facilities that treat a low number of privately insured patients typically treat more uninsured patients

# Losses on Uninsured and Underinsured Patients More Than Offset Profits Realized on the Treatment of Privately Insured Patients

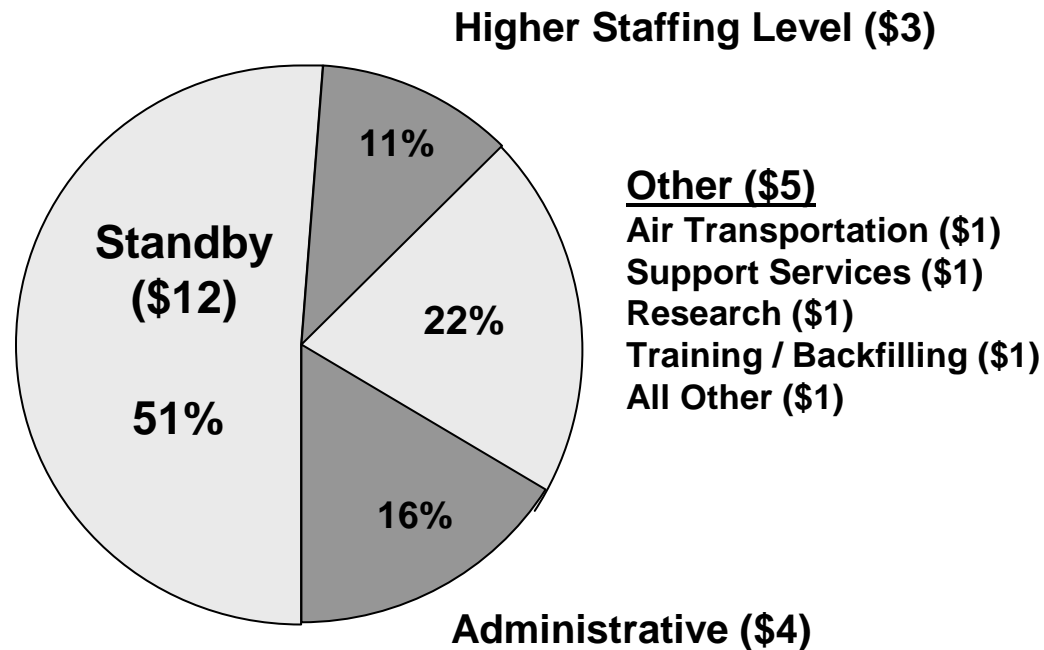
Cost Recovery Ratio of Clinical Care and Margin by Source of Payment (2003)



# Trauma Centers Incur Incremental Costs in Order to Be Continuously Ready to Treat Trauma Patients

## Costs of Trauma Center Readiness (2003)

Total \$23 Million



# Readiness Costs Are Seldom Reimbursed by Health Insurers

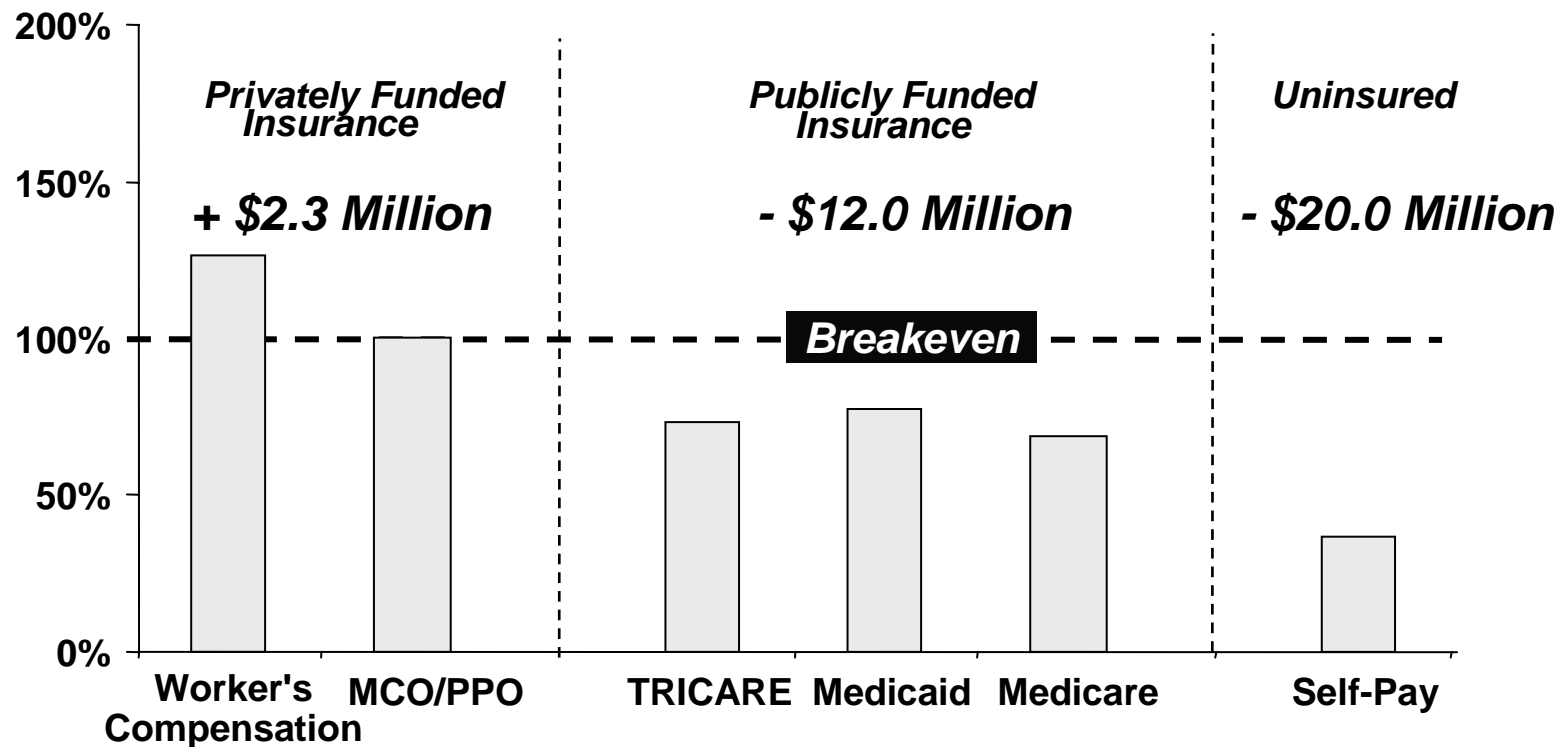
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- **Although trauma centers incur higher costs than other hospitals, they are generally reimbursed at the same level**
- **Insurers reimburse health care providers for treating patients rather than being ready to treat them**
- **Most reimbursement rates are based on the average expected cost of treating patients at any hospital rather than on the actual resources deployed**
  - **Trauma centers treat the most complex severely injured patients**
  - **More resources are deployed to treat patients in a trauma center than in other hospitals**
- **Readiness costs do not vary with patient volume**
  - **Same resources are available all day and every day to treat unpredictable trauma patient volumes, and meet designation guidelines**

# Trauma Centers Do not Receive Additional Revenue to Offset Readiness Costs

### Total Cost Recovery Ratio and Margin by Source of Payment (2003)



# The State Could Enhance Support for Trauma Centers in Virginia

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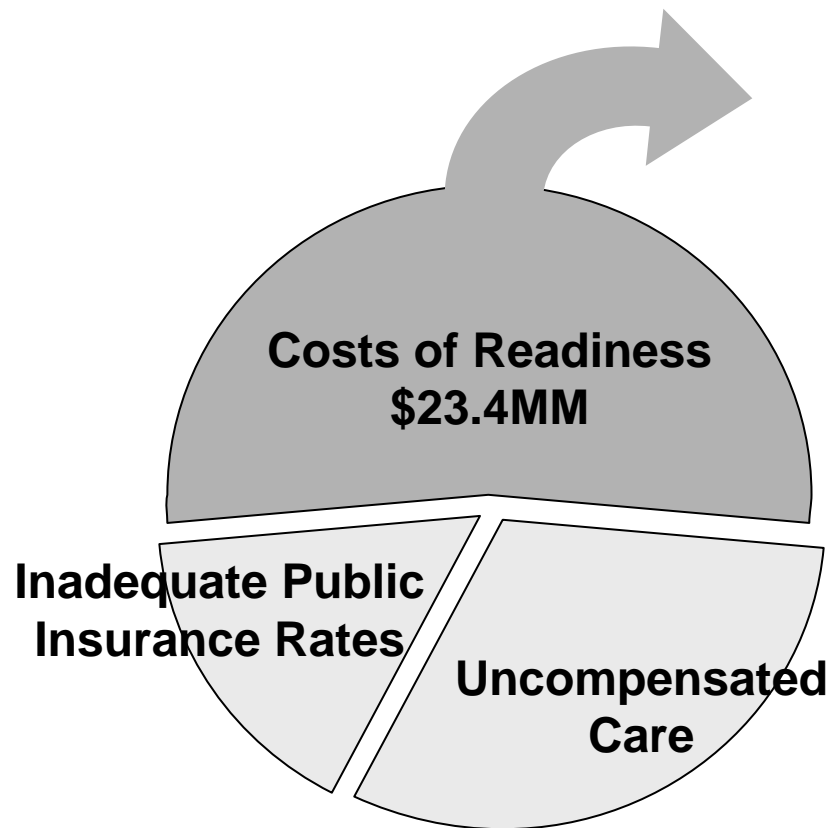
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- **During the 2004 Session, the General Assembly established a State Trauma Center Fund, which will receive approximately \$200,000 annually through increased DUI fines**
- **Findings from this study demonstrate that the level of funding currently available through the Fund is inadequate to address the financial losses of trauma centers**
- **Because trauma centers provide an important public good, trauma centers and the State may want to do more to ensure that trauma services remain available**

# Promoting Access to Trauma Centers by Addressing the Costs of Readiness

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- Trauma centers renegotiate contracts with private insurers
- Medicaid includes readiness costs in reimbursement rates

OR

- Establish fund for cost of readiness

# Addressing Readiness Costs by Partnering with Trauma Centers

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**Trauma centers renegotiate contracts with private insurers and State increases Medicaid rates to include readiness costs**

## Advantages

- **Payment responsibility shared equitably across insurers**
- **Funding automatically adjusts to level of readiness costs**
- **Small budgetary impact on State**

## Disadvantages

- **Private insurers may be unwilling to increase rates**
- **Medicare and uninsured patients not included**
- **Medicaid rate adjustments may vary with budget conditions**

**Estimated Annual Cost: \$1.4 Million; State Share: \$0.7 Million**

# Addressing Readiness Costs by Creating a Fund

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**If recovery from private insurers is inadequate, a readiness fund could be allocated to trauma centers based on designation level and trauma patient volume**

## Advantages

- **Certainty of funding**
- **Consistent with public good model**
- **Flexibility to address facility-specific challenges**

## Disadvantages

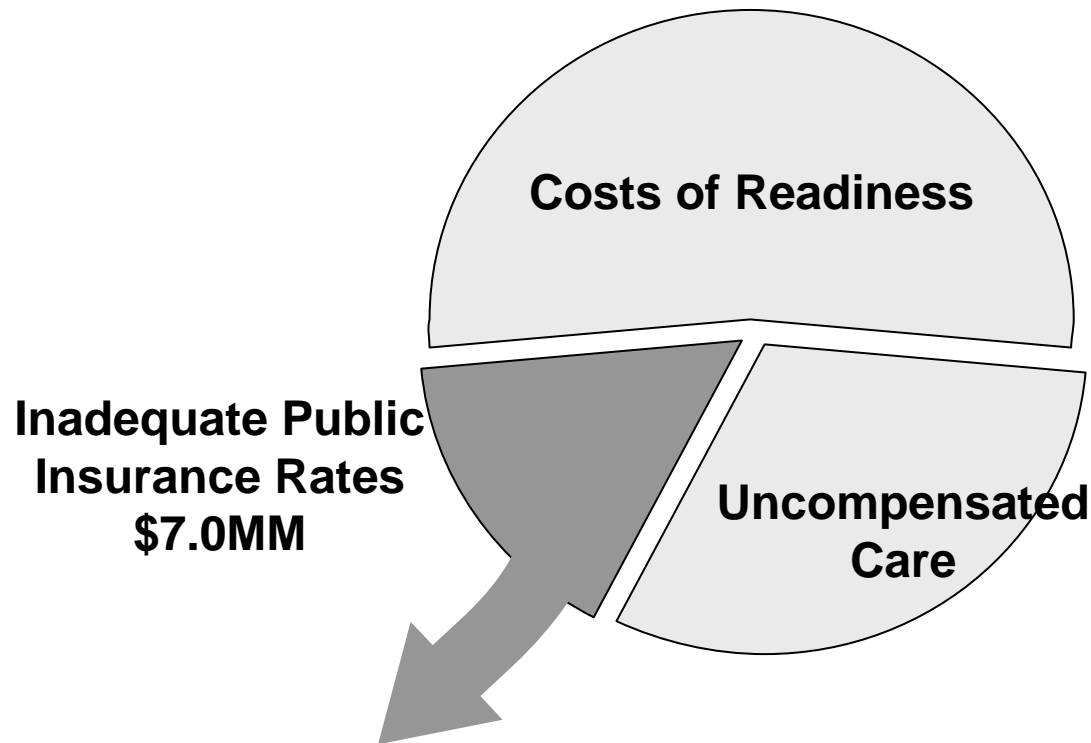
- **100 percent State funded**
- **Allocation may be imprecise**
- **Size of fund does not adjust based on need**

**Estimated Annual Cost: up to \$23.4 MM; State Share: up to \$23.4 MM**

# Promoting Access to Trauma Centers by Addressing Inadequate Public Payor Reimbursements

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- Increase Medicaid rates to cover 100 percent of the cost of clinical care

# Addressing Inadequate Public Insurance Reimbursements by Increasing Medicaid Rates

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**Medicaid operating payments could be increased to cover 100 percent of the cost of clinical care provided to trauma patients**

## Advantages

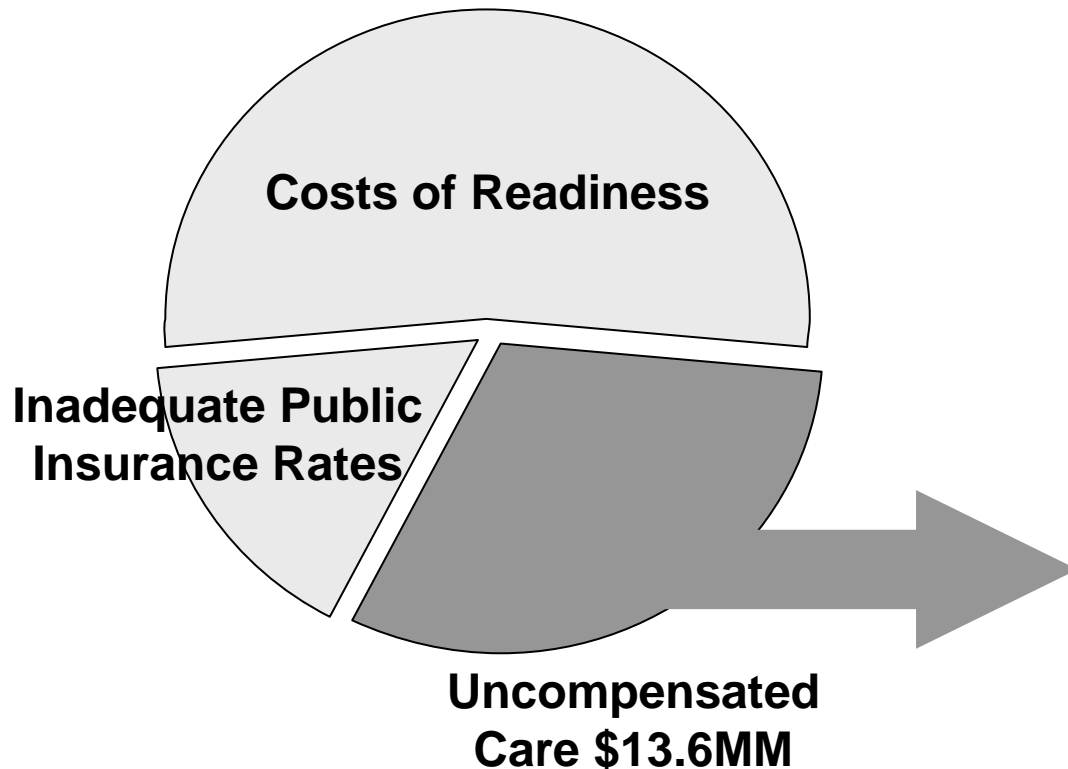
- **50 percent federal match**
- **Equitable to other insured patients**

## Disadvantages

- **Possible financial exposure**

**Estimated Annual Cost: \$3.2 Million; State Share: \$1.6 Million**

# Promoting Access to Trauma Centers by Addressing Uncompensated Care



- Establish uncompensated care fund for all trauma centers

OR

- Increase payments to trauma centers through the Medicaid program

# Addressing Uncompensated Care by Creating a Fund

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**Uncompensated care fund could be allocated to trauma centers based on the number of uninsured trauma patients treated and designation level**

## Advantages

- **More precise allocation**
- **Benefits all trauma centers**
- **Limited financial exposure**

## Disadvantages

- **100 percent State funded**
- **Size of fund does not adjust based on need**

**Estimated Annual Cost: up to \$13.6MM; State Share: up to \$13.6MM**

# Addressing Uncompensated Care by Increasing Payments Made Through the Medicaid Program

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**Medicaid reimbursements, DSH funding, or medical education payments to trauma centers could be increased to offset uncompensated care losses**

## Advantages

- 50 percent federal match
- Existing infrastructure

## Disadvantages

- Indirect allocation may be imprecise
- Financial exposure
- Subject to federal approval
- Not all trauma centers may benefit

**Estimated Annual Cost: up to \$13.6MM; State Share: up to \$6.8MM**

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# **Fines and Fees Could Provide Additional Support for the Trauma System in Virginia**

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- **The General Assembly could use additional sources of funding for the trauma system in Virginia:**
  - **Additional fines on DUI convictions or on all moving violations**
  - **Additional fees related to motor vehicles, such as driver's license or registration fees**
  - **A fee assessed on hospitals that are not designated trauma centers**

# Potential Fines and Fees Needed to Fund Options for the Trauma System in Virginia

| Potential Fine or Fee                   | Funding Level |        |         |         |
|-----------------------------------------|---------------|--------|---------|---------|
|                                         | \$1 MM        | \$5 MM | \$20 MM | \$50 MM |
| DUI Fine*                               | \$37          | \$183  | \$732   | \$1,830 |
| Fines on All Moving Violations*         | < \$1         | \$4    | \$14    | \$35    |
| Driver's License Fee**                  | < \$1         | \$4    | \$15    | \$37    |
| Vehicle Registration Fee                | < \$1         | \$1    | \$3     | \$8     |
| Community Hospital Fee per Licensed Bed | \$79          | \$395  | \$1,580 | \$3,949 |

\* Fines could be increased on a graduated schedule based on the frequency or severity of offenses

\*\* A different fee could be applied to reinstate a revoked license

# Conclusion

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- **A substantial number of Virginians have inadequate access to trauma centers, and some trauma patients may not be receiving the proper level of care for their injuries**
- **Securing enough physicians who agree to be on trauma call is the most critical issue faced by Virginia's trauma system today, and is likely to result in further trauma center downgrades or loss of designation given national and local experiences**
- **Trauma centers experience mounting financial losses that must be constantly balanced against other health care priorities in the community**
- **To promote continued access to trauma services across Virginia, the State and trauma centers could partner to address the financial and staffing challenges faced by the trauma system**