



**Defensive Systems Unit**  
**Ballistic Research Facility**  
**FBI Academy**



# Officer Involved Shooting

- 11/29/2006 6:00 PM EST
- A Pennsylvania police department
- Thirty-one sworn officers
- Five officers / shift
- Three officers involved in shooting
- One assailant, 18 year old male



# Weapons and Ammunition

- Police: Glock 22/Speer 180 gr. Gold Dot  
M4/Hornady TAP 55 gr. carried  
by tactical (SWAT) officers.  
M4/Hornady TAP 75 gr. carried  
by patrol officers.
- Assailant: One pistol/.45 Auto



# Initial Concerns of Police

- Stemmed from apparently inaccurate initial information from Coroner and/or Medical Examiner.
- Resulted in a belief by Police officials that .40 S&W ammunition failed and .223 ammunition “saved the day”.
- Prompted the SWAT TL to post information on NTOA website.



# FBI/DSU Involvement

- NTOA post was disseminated over the FBI's intranet by an FBI Special Agent.
- “Snowball” effect resulted in numerous phone calls/emails to DSU and BRF which questioned the performance of FBI .40 S&W service ammunition.
- BRF contacted the involved PD and Pa. State Police, responsible for the shooting investigation, to offer assistance.



# NTOA Blog

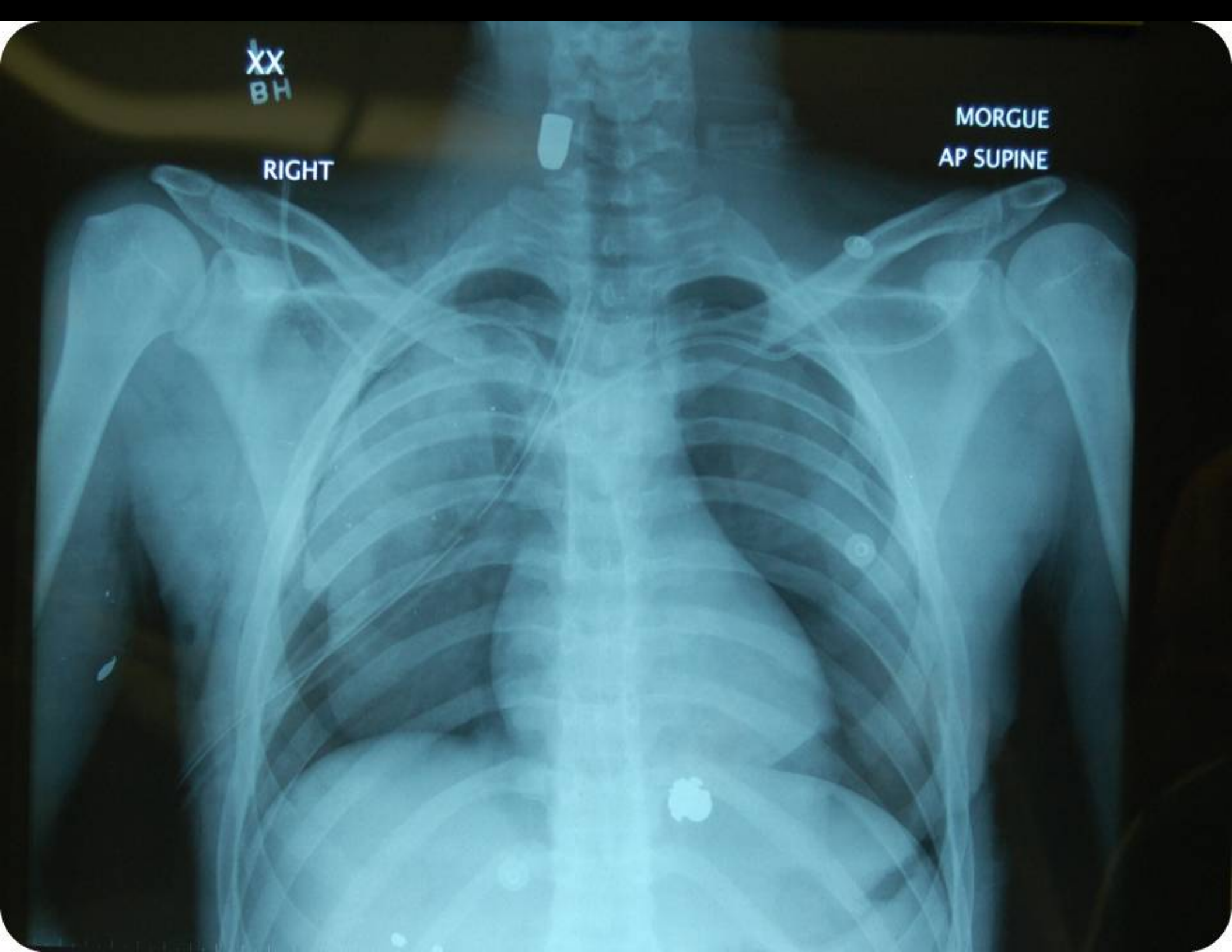
- All,
- The following was posted on an NTOA blog last night:
- 3 officers were involved in a shooting this week. An ambush was set up for the officers prior to their arrival, they took fire while still in their cruisers. One officer was hit in the forearm, another received wounds to his forehead from a ricochet, another was injured (NFI). The suspect was armed with a .45 handgun. The officers were armed with Glock 22's and SPEER 180 gr. Gold Dot Hollow Points.
- Officers fired on the subject and hit him in the left arm, completely shattering the bone. He was also hit five times in the chest and abdomen. All rounds penetrated less than 1". All of the rounds expanded fully but did not cause incapacitation due to the lack of penetration. According to the Medical Examiner, none of the rounds caused any life threatening injuries. The subject also received one round into the front of his throat, it penetrated less than 1" as well. The Medical Examiner stated that the recovered rounds were in pristine condition (still had rifling marks on them).
- The subject was wearing a down jacket at the time of the incident. He was finally taken down after receiving rounds from an M-4 .223, with Hornady Tap 55 gr ballistic tip rounds and Hornady Tap 72 gr. Hollow Points.
- The officer with the M-4 was able to shoot underneath a vehicle and hit the suspect in the ankle. The officer then flanked the subject, who continued to engage officers, and was eventually killed by the officer with the M-4.
- The subject had a trace amount of marijuana in his system.
- Range between subject and officers: 20 feet.
- Subject had a t-shirt on under his jacket.
- Subject received approximately sixteen .223 rounds, thirteen of these rounds went completely through. One round struck his hip and completely shattered it. Another .223 round struck his aorta and another pierced and collapsed his lung. Both of these rounds lodged themselves inside the subject. The Medical Examiner stated that the .223 rounds caused massive internal damage.
- This is the second shooting that the PD has experienced where they had to shoot a subject in excess of ten times with .40 S&W ammo to incapacitate or kill. There was another incident where a subject was shot inside of his vehicle. He was struck approximately ten times, all the while continuing to fire at officers. He was eventually killed after suffering a shot to the back of his head. In this same incident, the back of the subject's seat was struck multiple times, the .40 S&W rounds never penetrated through the seat. In this incident, all shots had passed through either the windshield or rear window. Investigators assume that this was the reason for the poor ballistic performance.
- (The) PD is now considering replacing their Glock 22's with Glock 21's.



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BH

RIGHT

MORGUE  
AP SUPINE









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MORGUE



















Fire By The Gun



By The Gun



# BRF Testing of Officer's Ammunition on 12/15/06

- Consistent with all bare gelatin and barrier testing done previously for ammunition data CD.
- Results of Speer 180 gr. Gold Dot satisfy FBI standards for terminal performance.
- Results of Hornady 55gr. and 75 gr. TAP do *not* satisfy FBI standards for terminal performance.



# Facts

- At least 107 rounds (.40/.223) were fired by two officers.
- First officer on scene seriously wounded in left forearm and seat-belted in cruiser was unable to return fire.
- Assailant fired 26 rounds and reloaded magazine from box of loose ammunition.
- Assailant was shot 17 times with 11 rounds exiting body.
- Incident lasted approximately 3.5 minutes.



# Facts

- Six .40 S&W rounds, five which expanded, were recovered on autopsy.
- It is impossible for .40 S&W 180 gr. JHP ammunition to expand with only 1 in. or less penetration in a human body.
- *After* all .223 rounds had been fired, assailant was hit with 180 gr. Gold Dot in *right* arm above the elbow.
- Officers had to “fight” assailant in order to get handcuffed.



# Lessons Learned

- There is plenty of inaccurate information regarding ballistics/terminal performance disseminated on web forums, even those which are dedicated as LE only.
- The .40 S&W ammunition did not fail in this incident.
- The performance of the .223 TAP ammunition, although consistent with manufacturer's claims, did not perform terminally as this Police Department expected.





# Lessons Learned

- Determined individuals can sustain *many* gunshot wounds in areas that produce great *pain* and continue to fight a *long* time, even without the aid of drugs or alcohol.
- Shot *placement* is everything in a gunfight and *always* the key to stopping a threat effectively.