Can I Ask You a Quick Question?
Curbside Consults in Infectious Diseases

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“Can I ask you a quick question?”

• Background on informal consultations
  – Frequency
  – Benefits and risks
  – General guidance

• Interactive cases based on commonly asked curbsides
Question

• Rank the following specialties in # of curbsides received:
  – Cardiology
  – Dermatology
  – Endocrinology
  – Infectious Diseases
Answer: We’re #1!

- Rank of the following specialties in # of curbsides received:
  1. Infectious Diseases
  2. Cardiology
  3. Endocrinology
  4. Dermatology
Prospective evaluation of curbside consults fielded by an ID Division over 6 months

Results
- 515 consults; 65% level 4, 7% level 5 (mod and high complexity, respectively)
- Based on relative value units (RVUs), these consults accounted for 22% of clinical work done by this ID unit
- No compensation – projected annualized loss of $95,000

Conclusion: “Curbside consultations are common and complex. The curbside consultation should be incorporated into measures of infectious diseases providers’ productivity and compensation.”

As part of reorganization of care in a post fee-for-service environment, I have electronic access to a “pool” of specialists to answer my questions.

A. True – and it is a useful service
B. True – but I still just reach out to the people I know
C. Not available
• Electronic model of adjudicating specialty referrals at SFGH to deal with high demand
• PCP provides information, reviewed by dedicated group of specialists who may request further information prior to appointment
• Reduces demand for specialty services, as well as inappropriate referrals

eConsults Change Clinical Practice and Reduce Referrals

• Review of 224 eConsults over a 20 month period
• Most common topics: TB testing 14.3% (32), Lyme disease 14.3% (32) and parasitology 12.9% (29)
• After eConsult:
  – 32% face-to-face referral planned but not needed
  – 8% referred for formal consult after initially not planning to do so
  – 55% received new information that changed clinical care

Benefits of Curbside Consultations

• For consulter and patient
  – Efficiency
  – May reduce healthcare utilization
  – Opportunity to learn

• For consultant
  – Extends clinical expertise to others
  – Increases appropriateness of referrals
  – Opportunity to teach and learn

• For both
  – Collegiality!
• Curbside consults on 50 patients compared with 47 formal consults on these same patients
  – Formal consultation found inaccurate information in 51%
  – Management advice differed in 60%
  – In those with inaccurate information, management advice differed in 22/24 patients (p<0.0001)

• Limitations: Hospital setting; limited diversity of patient population

Question

What do you do with advice you receive from ID doctors via a curbside consult?

A. Cite the ID doctor’s name and summarize recommendation in the medical record
B. Cite “reviewed with ID” and summarize recommendation in the medical record
C. Proceed with recommended plan without citing doctor or ID
Question

What is the legal risk to a provider who responds to the curbside consults?

A. None; no relationship with the patient
B. Can be cited in a suit if name is in the chart, but probably will be dropped
C. Just as risky as if care is provided
Curbsides: Advice from Risk Management

• Specify in “boilerplate” language that your advice is general and does not apply to a specific patient
• Offer to see the patient for a formal consultation
• Avoid reviewing a medical record or test result of a patient you have never seen
• *Document everything*

LaValley D, CRICO Forum, September 2009.
Handy ID Resources


• AAP Red Book: Report of the Committee on Infectious Diseases (aapredbook.aappublications.org)

• Travel medicine: www.cdc.gov/travel
Handy ID Resources

- Immunizations: immunize.org, “Ask the Experts”
- IDSA Practice Guidelines: idsociety.org(idsa_practice_guidelines
- aidsinfo.nih.gov
- www.cdc.gov
Hi Paul,

Horse is being treated for Lyme; horse’s owner asks if she needs treatment too. No symptoms. Yay or nay? (Or should I say “neigh”? Ha.)

Clifford

p.s. I’m extremely grateful for your expert assistance with this important clinical matter. Where to I send the check?
Dear Paul,

Hi, Sorry to bother you, I have a patient with history of infected hardware with MRSA and osteo of R ankle which required surgery and removal the hardware a few years ago. I saw her today with severe pain in calf. The Ultrasound shows soft tissue swelling, no DVT, and they suspect cellulitis; there was just a 2 mm erythema on her skin. She is allergic to bactrim, vanco, rifampin, doxycycline. Should I suspect this will be MRSA again? I am not sure what to give to her for abx given her multiple allergies.

She didn't have any fever or chills, she just has some swelling and pain, even didn't look like cellulitis on exam, but I'm sure it will get worse.

I really appreciate your input on her sooner rather than later so I can reach her and give her a treatment plan. Please also let me know how long you would treat her.

Jenny
Also Not a Good Curbside Consult

Hey -- quick question. can you review test results MR#27389213?

He’s coming in to see me later today so I need to know ASAP what to do.

Thanks in advance,

Dan
Hey, could I ask you a quick question?

This is a 56yo man from Dominican Republic dx with HIV 1997. His initial CD4 was 233 and he has always refused HAART due to fear of side-effects mostly. Most recently CD4 90(9%) w/ VL>750,000. His course has been complicated by weight loss and weakness and recurrent thrush. He has painless cholestatic hepatitis with alk phos elevations to 800 in the past and normal to mildly elevated transaminases. As part of an evaluation for this a year and a half ago, he had viral hepatitis titers/PCRs which were all negative and an ANA which was >1:1600. Biopsy at the time was incredibly non-specific with the pathologist actually writing "consistent with viral hepatitis vs drug effect vs autoimmune hepatitis". He drank regularly at the time and stopped alcohol around then. He saw a hepatologist who tried to put him on prednisone - which he took for a few days and then never went back. Six mos ago I took him off bactrim and replaced it with AP and his alk phos has slowly come down to low 200s. Over the past year and a half, other problems have turned up. He's always had trouble with pills, but his dysphagia progressed and work-up showed a severe esophageal inlet stricture with large zenker's. Neck CT showed no extrinsic compression. He's required several dilations. With progressive weakness, he actually had electrodiagnostic studies showing severe proximal > distal myopathy and the usual sensory polyneuropathy. His highest CPK has been around 350 and currently it's back down to normal. He has to walk with a rolling walker with a fold out bench. He had an ESR a yr ago of over 100 (I believe it was sent because of the myopathy initially). Currently ESR is 145. He has chronic anemia, usually with hct 30, but over the past 6mos hovering around 25. I should also note that his PPD was negative twice recently. I have no records of priors, but he recalls them being negative and he denies any family members having known TB while in DR. Due to progressive wt loss, anorexia, and weakness, I repeated a CXR and it showed a small ?pleural based density on the right. Chest CT confirmed an old granuloma in the anterior RLL and a new 2.5cm density surrounding it...
Curbside Consults: Conclusions

• Important for efficient patient care, collegiality
• Especially useful for non-urgent clinical issues, ideal for questions on prevention
• Challenges: financing, medical-legal risk, complex cases
Case Presentations

Participation Required!
Case

• A couple returns from honeymoon to Martinique, concerned about Zika as they want to start a family
• No symptoms while there
• Blood tests sent:
  – Man: Zika IgM positive
  – Woman: Zika IgM negative
Question

• What should be done next?

A. Since he was asymptomatic, OK for them to try and conceive
B. Send man’s sample for confirmatory antibody testing; if negative, OK to try and conceive
C. Send Zika blood and urine PCR; if negative, OK to try and conceive
D. No further testing; advise them to use condoms for 6 months
Compare and Contrast

Aedes mosquito

- Carries: Zika, Dengue, West Nile

'80s mosquito

- Carries: Rubik's cube, Swatch, Walkman
Areas of Active Zika Transmission

Timeframe to Wait BeforeTrying to Get Pregnant

• Possible exposure via travel or sex
  – Women: 8 week after symptoms or last exposure
  – Men: 6 months after symptoms or last exposure

• Living or traveling often to Zika area with:
  – Positive test
    • Women: 8 weeks after symptoms start
    • Men: 6 months after symptoms start
  – Negative test or no testing done – “talk with doctor or healthcare provider”

Last revised Sept 30, 2016.
<table>
<thead>
<tr>
<th></th>
<th>MDPH State Lab testing (requires MDPH approval)</th>
<th>Commercial Lab PCR (if obtained within 14 days of symptom onset)</th>
<th>Commercial lab IgM (if obtained between 4 days and 12 weeks of symptom onset)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant women with possible Zika virus exposures</td>
<td>❑</td>
<td></td>
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<tr>
<td>Men with possible Zika virus exposures who are sexual partners of pregnant women</td>
<td>❑</td>
<td></td>
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<tr>
<td>Patients with possible Zika virus-related neurological complications*</td>
<td>❑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Everyone else with possible Zika virus exposure</td>
<td>❑</td>
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<td>❑</td>
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</table>

*Neurological complications may include Guillain-Barré syndrome, transverse myelitis, meningoencephalitis. Mass Dept of Public Health 617-983-6800; Commercial labs: Viracor, Quest.*
I live in Miami, I'm pregnant, and I tested positive for the Zika virus

By Lindsay C. Malloy

The Washington Post

DC lab botched Zika tests involving pregnant women
Teaching Points:
1) Zika may be sexually transmitted for 6 months after infection
2) Testing is a work in progress!
Case

- 64 year-old woman calls you regarding upcoming dental work.
- Six months prior, underwent elective hip replacement for osteoarthritis, uncomplicated; tolerated perioperative cefazolin.
- She requests prescription for antibiotics based on her dentist’s and orthopedist’s recommendation.
Question

What is the recommended approach?

A. amoxicillin 2 gm PO 1 hour before the procedure
B. cephalexin 2 g PO 1 hour before the procedure
C. clindamycin 600 mg IV 1 hour before the procedure
D. no prophylaxis indicated
Dental Prophylaxis for Endocarditis: Supportive Data

- Dental procedures may induce bacteremia with oral flora.
- These bacterial species commonly cause endocarditis, a serious condition.
- Animal models demonstrate the efficacy of antibiotic prophylaxis.
- Endocarditis cases have increased in Great Britain since their guidelines stopped recommending prophylaxis around dental work.

“Endocarditis cases have increased in Great Britain since their guidelines stopped recommending prophylaxis around dental work...”
Dental Prophylaxis and Prosthetic Joint Infections

• Most common microbiologic causes: *Staph* spp, beta strep
• “Oral flora” account for approx 1-2% of cases
• Dental procedures linked only by case reports, very limited animal data
• Modeling studies consistently show no utility of prophylaxis

However ...

“The less the evidence there is, the more antibiotic we give.”

--Unknown Surgeon
Hi Paul,
Sorry to bother you. I have a pt who is 5 years s/p knee replacement, recently s/p C diff infection. Needs a colonoscopy. Has been advised by her orthopedic surgeon to be pretreated with antibiotics prior to having a colonoscopy. She is understandably concerned about causing another bout of C. Diff. Should I treat her with empiric Flagyl after she gets the amoxicillin? Thanks.
AAOS 2009: Give Prophylactic Antibiotics 
**Indefinitely s/p** Total Joint Replacements

http://www.aaos.org/about/papers/advistmt/1033.asp
"The practitioner might consider discontinuing the practice of routinely prescribing prophylactic antibiotics for patients with hip and knee prosthetic joint implants undergoing dental procedures."

Take Home Message on Prophylactic Antibiotics for Dental Work

Teaching Point:
Dental prophylaxis routinely indicated for endocarditis prevention only.
Case

• A 58-year old woman from Serbia is about to start etanercept for rheumatoid arthritis.
• Her pre-treatment TST is positive at 18 mm, which she does not believe since she received BCG as a child.
• As a result, an IGRA is sent which is negative. She has no symptoms consistent with TB, and a CXR is negative.
Question

What should be done next?

A. No preventive therapy needed
B. Send the other version of the IGRA as a tie-breaker
C. Preventive therapy for 1-2 months before etanercept is started, then complete full course
D. Ask an ID doctor
Who Should be Tested for Latent Tuberculosis?

1. Increased risk of acquiring infection
   or
2. Increased risk of infection becoming disease

<table>
<thead>
<tr>
<th>Population</th>
<th>Asymptomatic adults at increased risk for infection</th>
</tr>
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<tbody>
<tr>
<td>Recommendation</td>
<td>Screen for latent tuberculosis infection (LTBI).</td>
</tr>
<tr>
<td></td>
<td>Grade: B</td>
</tr>
</tbody>
</table>

USPSTF Recommendations, JAMA 2016;316(9):962-969.
Increased Risk of Active Disease

• *Highest Risk*
  1. HIV infection (any stage of illness)
  2. Transplant, chemotherapy, or other major immunocompromising condition
  3. Lymphoma, leukemia, head and neck cancer
  4. Abnormal chest x-ray with apical fibronodular changes typical of healed TB (not including granuloma)
  5. Silicosis
  6. Renal failure (requiring dialysis)
  7. Treatment with TNF-alpha inhibitors
<table>
<thead>
<tr>
<th>Group</th>
<th>Testing Strategy</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likely to be Infected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Risk of Progression</td>
<td>Adults: IGRA OR TST</td>
<td>Prevalence of BCG vaccination</td>
</tr>
<tr>
<td></td>
<td>Accepted: IGRA OR TST</td>
<td>Expertise of staff and/or laboratory</td>
</tr>
<tr>
<td></td>
<td>Consider dual testing where a positive</td>
<td>Test availability</td>
</tr>
<tr>
<td></td>
<td>result from either would be considered</td>
<td>Patient perceptions</td>
</tr>
<tr>
<td></td>
<td>positive&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Staff perceptions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Programmatic concerns</td>
</tr>
<tr>
<td>Likely to be Infected</td>
<td>Children ≤ 5 years of age</td>
<td></td>
</tr>
<tr>
<td>Low to Intermediate Risk of</td>
<td>Preferred: TST</td>
<td></td>
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<tr>
<td>Progression</td>
<td>Accepted: IGRA or TST</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preferred: IGRA where available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepted: Either IGRA OR TST</td>
<td></td>
</tr>
<tr>
<td>Likely to be Infected</td>
<td>Testing for LTBI is not recommended</td>
<td></td>
</tr>
<tr>
<td>Unlikely to be Infected</td>
<td>If necessary:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preferred: IGRA where available</td>
<td></td>
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<tr>
<td></td>
<td>Accepted: Either IGRA OR TST</td>
<td></td>
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<tr>
<td></td>
<td>For serial testing:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accepted: Either IGRA OR TST</td>
<td></td>
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<tr>
<td></td>
<td>Consider repeat or dual testing where a</td>
<td></td>
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<tr>
<td></td>
<td>negative result from either would be</td>
<td></td>
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<tr>
<td></td>
<td>considered negative&lt;sup&gt;2&lt;/sup&gt;</td>
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1. Performing a second diagnostic test when the initial test is negative is a strategy to increase sensitivity. This may reduce specificity, but the panel decided that this is an acceptable tradeoff in situations in which the consequences of missing LTBI (i.e., not treating individuals who may benefit from therapy) exceed the consequences of inappropriate therapy (i.e., hepatotoxicity).

2. Performing a confirmatory test following an initial positive result is based upon both the evidence that false-positive results are common among individuals who are unlikely to be infected with Mtb and the committee’s presumption that performing a second test on those whose initial test was positive will help identify initial false-positive results.
Interferon-gamma Release Assays (IGRAs)

- **Whole blood** incubated with specific *M. tuberculosis* antigens
- Interferon-gamma production measured
- Just as with TST, relies on immune response
- IGRAs available
  - QuantiFERON® -TB Gold-in-tube test
  - T.SPOT®.TB test (T-Spot)
Interferon-gamma Release Assays (IGRAs)

- **Pros**
  - Only one visit
  - Interpretation more objective
  - BCG vaccination

- **Cons**
  - High cost
  - Needs whole blood
  - Availability
  - Cross-reaction with *M. marinum, M. kansasii*
## Test Characteristics of TST vs. IGRA

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Positive Predictive Value</th>
<th>Negative Predictive Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TST</strong></td>
<td>90-100%</td>
<td>29-39%</td>
<td>2.7-3.1%</td>
<td>99-100%</td>
</tr>
<tr>
<td><strong>IGRAs</strong></td>
<td>80-90%</td>
<td>56-83%</td>
<td>4-8%</td>
<td>99-100%</td>
</tr>
</tbody>
</table>

Important: There is no “gold standard” for latent TB.

Horsburgh CR Jr, Rubin EJ. NEJM 2011
BCG and Tuberculin Skin Testing

• BCG administration can lead to positive TST
• The risk of positive TST resulting from BCG varies with administration schedule
• However, many positive TST’s most likely represent TB infection even in vaccinated individuals – hence BCG history should be ignored

The rest of the world doesn’t believe us!
Online TST/IGRA Interpreter

- Provides estimates of predictive positive value of test, risk of developing TB, and risk of preventive therapy drug toxicity
- Invaluable educational tool for clinicians and patients alike!

Teaching Points:
1) IGRA now preferred over TST in most patients.
2) For discordant results, interpretation depends on *clinical judgment.*
Case

• 36 year-old advertising executive with loose stools, bloating x 1 month

• Dates symptom onset to an extensive business trip to Asia, including Indonesia, China, and Nepal; pt convinced he has a “parasite”

• PE: No weight loss. Stool O/P exam: many Endolimax nana
Question

• You recommend:

A. Metronidazole 750 mg PO TID x 10 days
B. Nitazoxanide 500 mg PO QID x 10 days
C. No therapy indicated; tell him it’s all in his mind
D. No therapy indicated; consider additional stool studies looking for alternate causes of his symptoms
Parasites are confusing ...

Hi Paul, 63 y/o female with h/o HTN and DM, presents for evaluation of "severe" anal itching x 2 weeks. Itching is worse at night and she does not believe it is diet related or associated with defecation. She is concerned she might have whip worm because her dog was recently dx with this. She reports stomach grumbling and excessive gas, but states she has always had this problem.

After her exam I think cause is a hemorrhoid. Can whip worm be transferred from dogs to humans? Is it safe for her to take her dog’s medicine? (I think she has already done this.) Also, I have always understood that whip worm typically presents with bloody diarrhea. Is this correct? Thanks, Brenda
Pathogenic Intestinal Protozoa

• Definite
  – *Entamoeba histolytica* -- travelers, invasion
  – *Giardia lamblia* -- most common
  – *Dientamoeba fragilis* -- eos, Rx tetracycline
  – Cryptosporidia, microsporidia, isospora, cyclospora -- need special stains

• Possible
  – *Blastocystis hominis* -- conflicting data, Rx metronidazole 750 TID x 10 days

Non-pathogenic Intestinal Protozoa

• Amoebae
  – Entamoeba hartmanni
  – Entamoeba coli
  – Entamoeba polecki
  – Endolimax nana
  – Iodamoeba butschlii
  – (Entamoeba dispar)

• Flagellates
  – Trichomonas hominis
  – Chilomastix mesnili

Non-pathogenic Intestinal Protozoa and Ongoing Diarrhea after Travel

- Signify fecal contamination of food and/or water
- With symptoms, consider
  - Antigen studies – giardia, cryptosporidia
  - Special stains for cryptosporidia, microsporidia, isospora, cyclospora
  - Post-infectious lactase deficiency
  - Bacterial overgrowth
- Diagnosis of exclusion (but common!): Post-infectious irritable bowel

Teaching Point: Not all intestinal parasites cause disease
Case

• 48 year-old thoracic surgeon, contacts you for advice
• Bats seen in his house: in living room on several occasions, once in 8 year-old son’s room while child was sleeping
• Opened windows and bats flew out
• No apparent contact with bats at any time
What is the recommended approach?

A. Administer both human rabies immune globulin (HRIG) and begin rabies vaccine series for all household members
B. Administer both HRIG and begin the vaccine series for the child
C. Attempt to capture a bat for the Department of Public Health to examine to r/o rabies
D. No active or passive immunization needed
Since 1960, there are 0-3 human rabies cases/year in the USA.
Most Rabies in the USA is Bat-Related

Possible Bat Contact: Guidelines

“The risk for rabies resulting from an encounter with a bat might be difficult to determine because of the limited injury inflicted by a bat bite ... Situations that might qualify as exposures include finding a bat in the same room as a person who might be unaware that a bite or direct contact had occurred (e.g., a deeply sleeping person awakens to find a bat in the room or an adult witnesses a bat in the room with a previously unattended child, mentally disabled person, or intoxicated person).”

Rabies

What is rabies?

Can bats give you rabies?

How do you know if an animal has rabies?

Derrick

Sandy

Amy

Get The Facts

Warning Signs

Sean and the Raccoon

When Sean was 11 years old, he was camping with his class at the Okefenokee National Wildlife Refuge in Georgia.

http://www.cdc.gov/rabiesandkids/
Rabies Vaccination after “Occult” Bat Exposure: Should We Reconsider?

• <5% of such exposures receive vaccination
• Incidence of rabies from bat in bedroom but no actual contact: 1 case per 2.7 \textit{billion} person-years
  – Number needed to treat to prevent one case: 2.7 \textit{million}
• If all eligible cases actually received vaccination, this would require 49 physicians and 491 nurses working full-time for a year
• Canada no longer recommends prophylaxis for bats in bedroom; USA still does

Clinical Infectious Diseases 2009;48:1493–1499
“Don’t mind me, Richie – it’s just the rabies talking.”

The New Yorker November 10, 2003
A. A 32 year-old woman goes to her doctor when, after feeding a wild raccoon with a baby bottle, she took some sips of milk from the bottle herself to see if she could increase the flow.
Extra Credit

B. A woman returns from a trip to the Galapagos Islands, where she was bitten on the hand while trying to pet a sea lion. She comes to see you requesting rabies vaccination.
C. A couple attends a “Champagne Cruise” on a warm summer evening, and the woman accuses her date of putting his hands under her skirt (he denies). Later that evening, she finds a wounded bat trapped under the elastic of her underwear.
D. A child finds a new piece of upholstered furniture in her dollhouse. After playing with it for several hours, she brings it to her mother. On closer inspection, it is in fact a dead bat, time of death unknown. They both seek rabies vaccinations for themselves.
E. The Massachusetts Department of Public Health learns that a child has brought a dead bat nailed to a wooden board to a South Boston public school. Many children have handled the bat, many others can’t remember. The bat is analyzed for rabies at the State Lab, and is too decomposed for definitive results.
F. A 45 year old woman finds a bat in her house, and knocks it to the ground with a tennis racquet. Her husband then pounds it with a baseball bat, picks it up with a plastic bag and brings it to the State Lab for examination. At the State Lab, they are unable to find any bat brains at all. The couple requests rabies immunizations, and asks whether they should move out of the house because of the risk of aerosolized rabies virus.
Extra Credit

Which case scenario is fictitious?

A. Raccoon/baby bottle
B. Galapagos/petting/sea lion bite
C. Champagne cruise/bat flew under skirt
D. New dollhouse furniture (bat)
E. Bat nailed to board/school Show and Tell
F. Aerosolized bat brain
G. None of the above