

Immunizations & Talking with Parents

Who

What

Why



Manchester Health Department



This project is supported by American Recovery and Reinvestment Act
and by NH Division of Public Health Services Immunization Program



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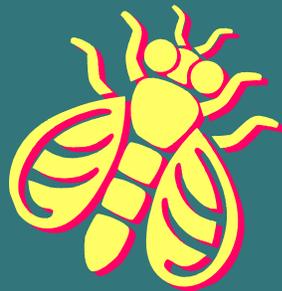
Human immune system

- Protects the body from illness
- Learns to “recognize” viruses and bacteria
- Must be “introduced” to the “bug”
- Takes time to build a defense
- Develops a memory to respond quickly the next time it “sees” that “bug”



Human immune system

- Learning begins at birth
- We continue to “learn” through all life

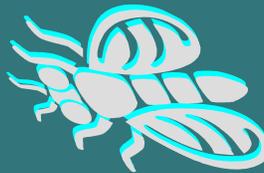
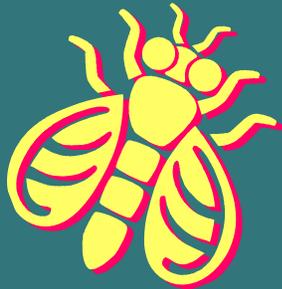


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Human immune system

- Learning begins at birth
- We continue to “learn” through all life
- For minor illnesses we can let our bodies learn on their own

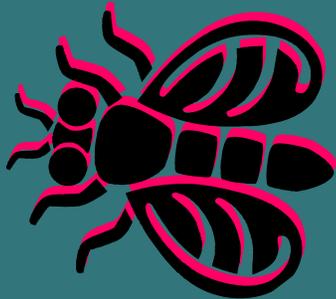


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Human immune system

- Learning begins at birth
- We continue to “learn” through all life
- For minor illnesses we can let our bodies learn on their own
- We use vaccines to “introduce” bugs for infections that could be life-threatening



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Human immune system

- Passive immunity
- Active immunity
- Community immunity (“herd” immunity)



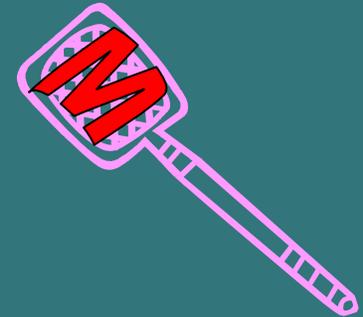
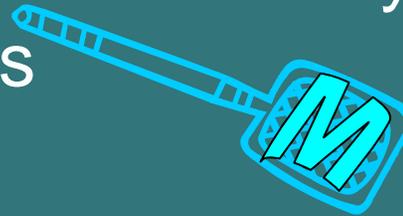
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Human immune system

- Passive immunity

- Protection from another person—baby is born with some of mom’s immunities



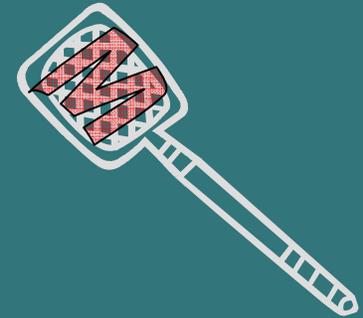
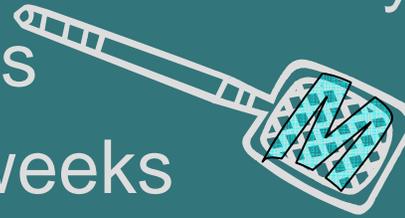
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Human immune system

- Passive immunity

- Protection from another person—baby is born with some of mom’s immunities
- Temporary—lasts a few weeks



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Human immune system

- Passive immunity

- Protection from another person—baby is born with some of mom’s immunities
- Temporary—lasts a few weeks

- Active immunity

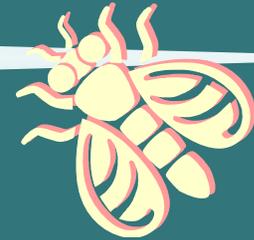
- Protection from the person’s own immune system
- Immune system “learns” and “remembers”
- Vaccines create active immunity



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Vaccines



- Create active immunity
- Weakened or killed virus or bacteria
- Gives body chance to learn this particular “bug”

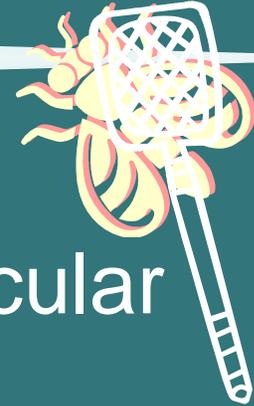


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Vaccines

- Weakened or killed virus or bacteria
- Gives body chance to learn this particular “bug”
- Gives body memory

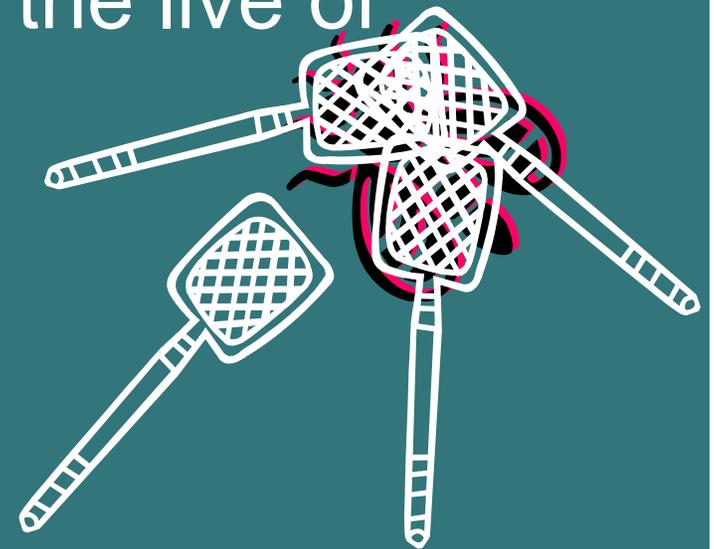
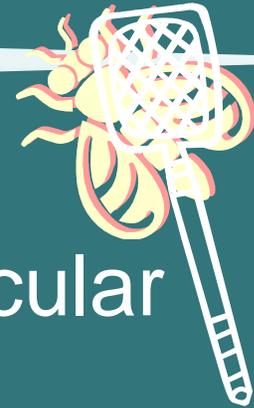


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Vaccines

- Weakened or killed virus or bacteria
- Gives body chance to learn this particular “bug”
- Gives body memory for when the live or strong “bug” tries to invade

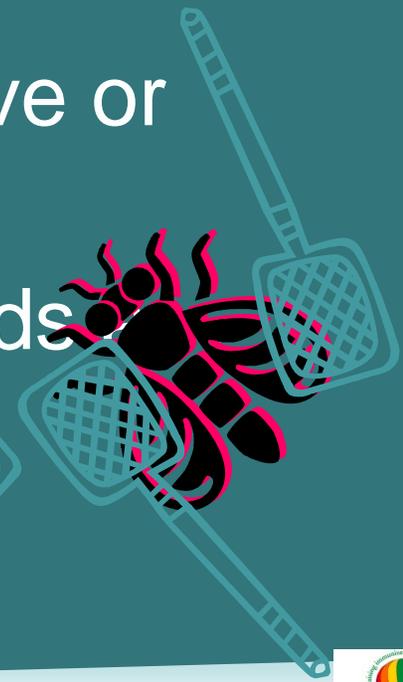
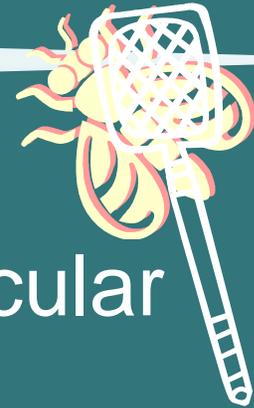


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Vaccines

- Weakened or killed virus or bacteria
- Gives body chance to learn this particular “bug”
- Gives body memory for when the live or strong “bug” tries to invade
- Sometimes memory fades and needs “booster”

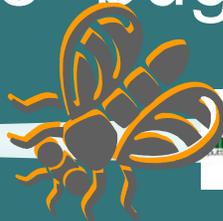
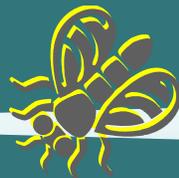
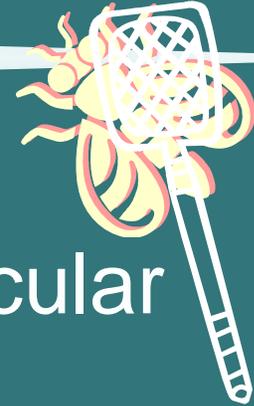


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Vaccines

- Weakened or killed virus or bacteria
- Gives body chance to learn this particular “bug”
- Gives body memory for when the live or strong “bug” tries to invade
- Sometimes memory fades and needs “booster”
- Sometimes the “bugs” change



Immune system reactions

- At injury site:
 - Extra blood for nutrients, oxygen, white cells
 - Red, warm, puffy, tender
- Whole body:
 - Fever speeds up metabolism
 - Tired/sleepy—rest so body can focus on “infection”
- Immunizations stimulate immune system



Discussion and Practice



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Community Immunity (“herd immunity”)

- Vaccination of a large portion of a community
- Protects unvaccinated people in the community
- Protects people who cannot be vaccinated like pregnant moms
- More individuals vaccinated = more community protection
- 50% not as protective as 90%



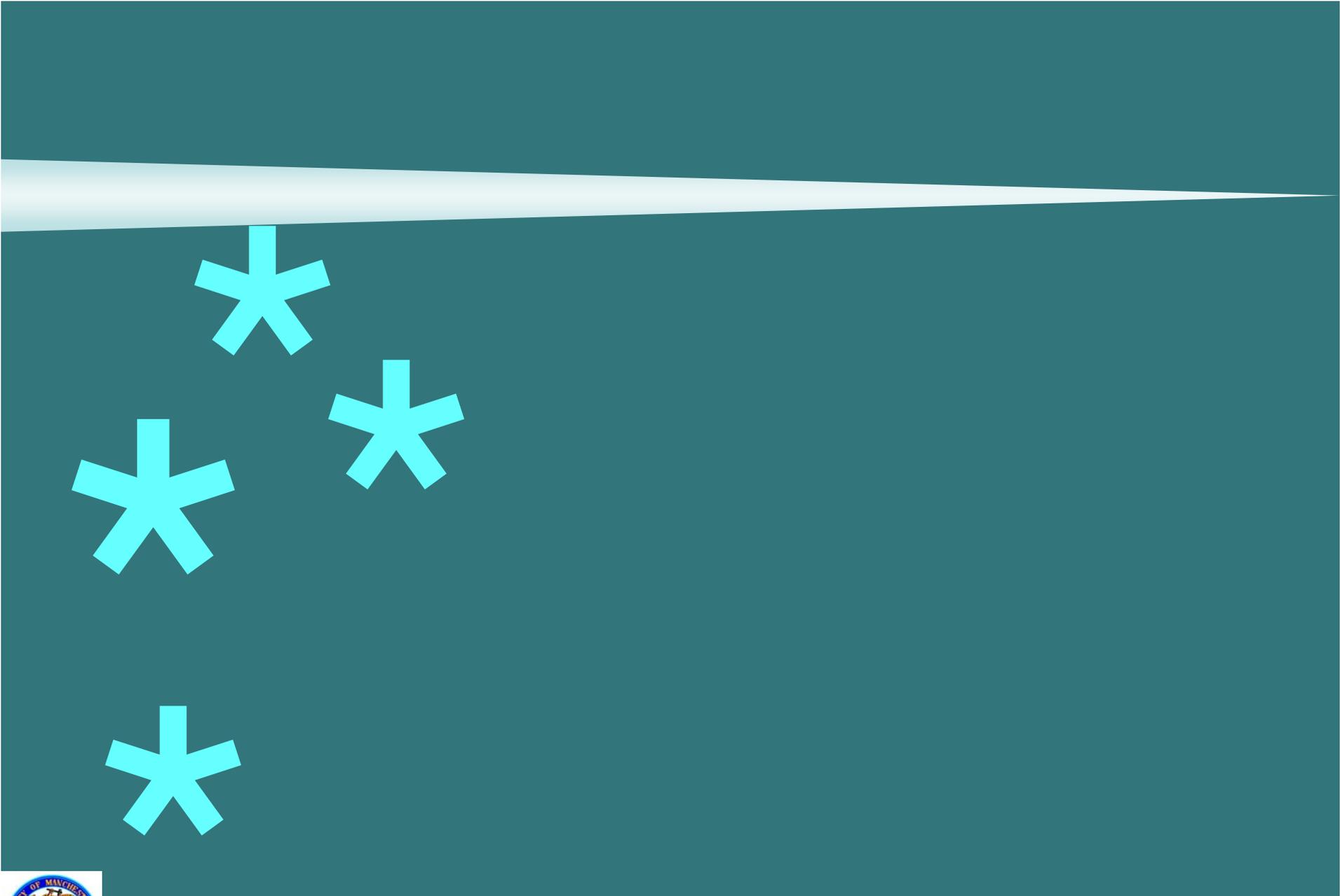


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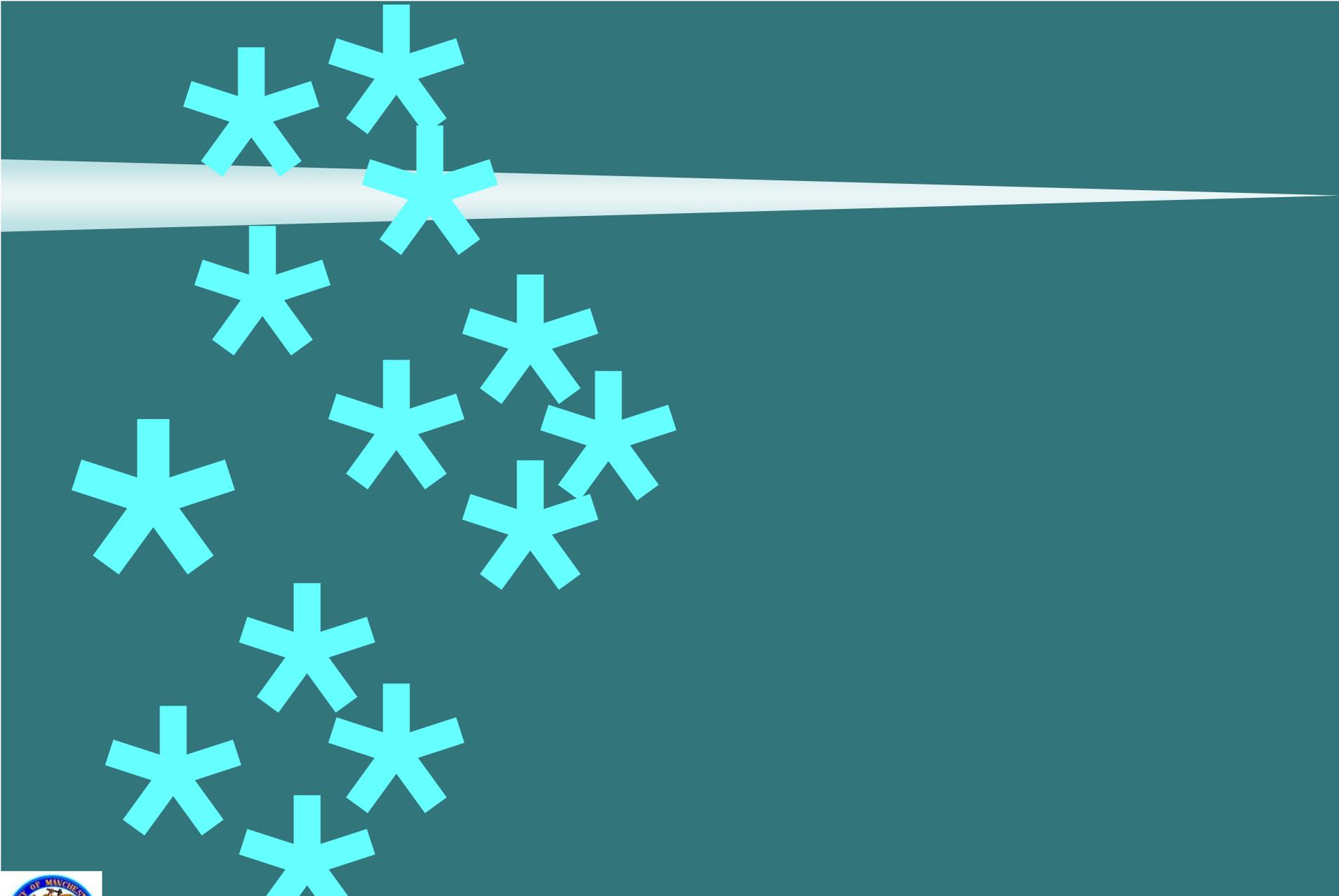


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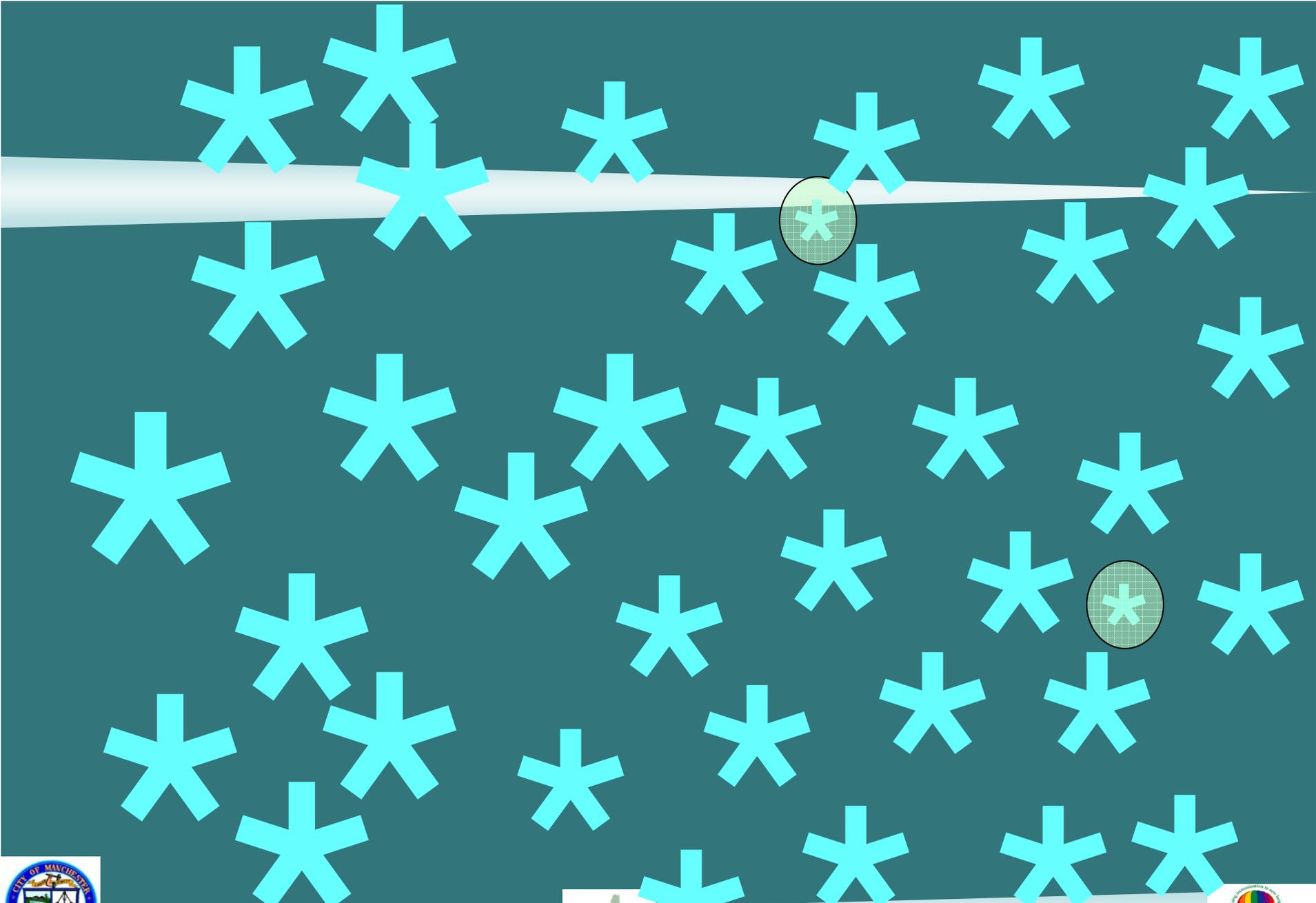




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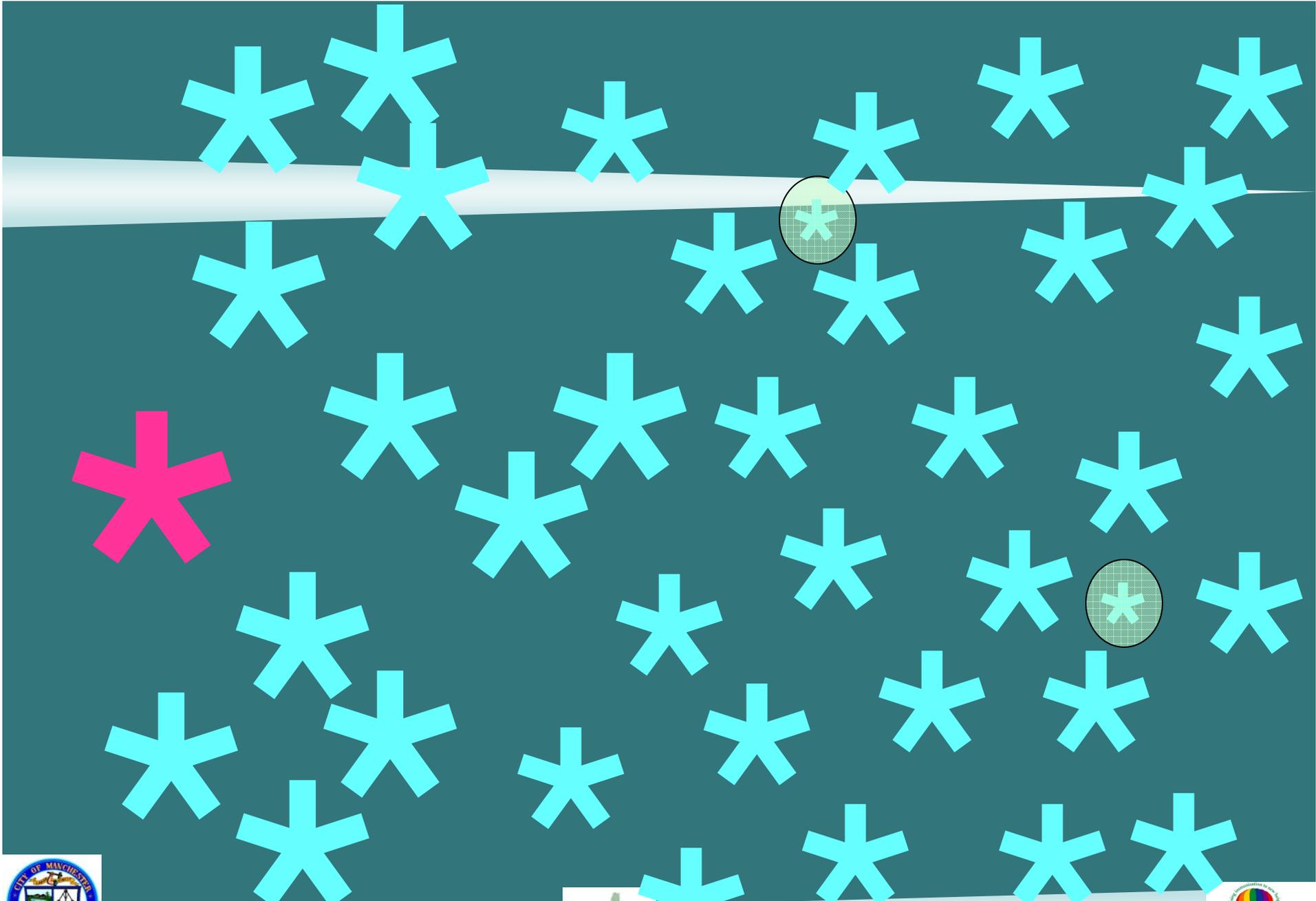


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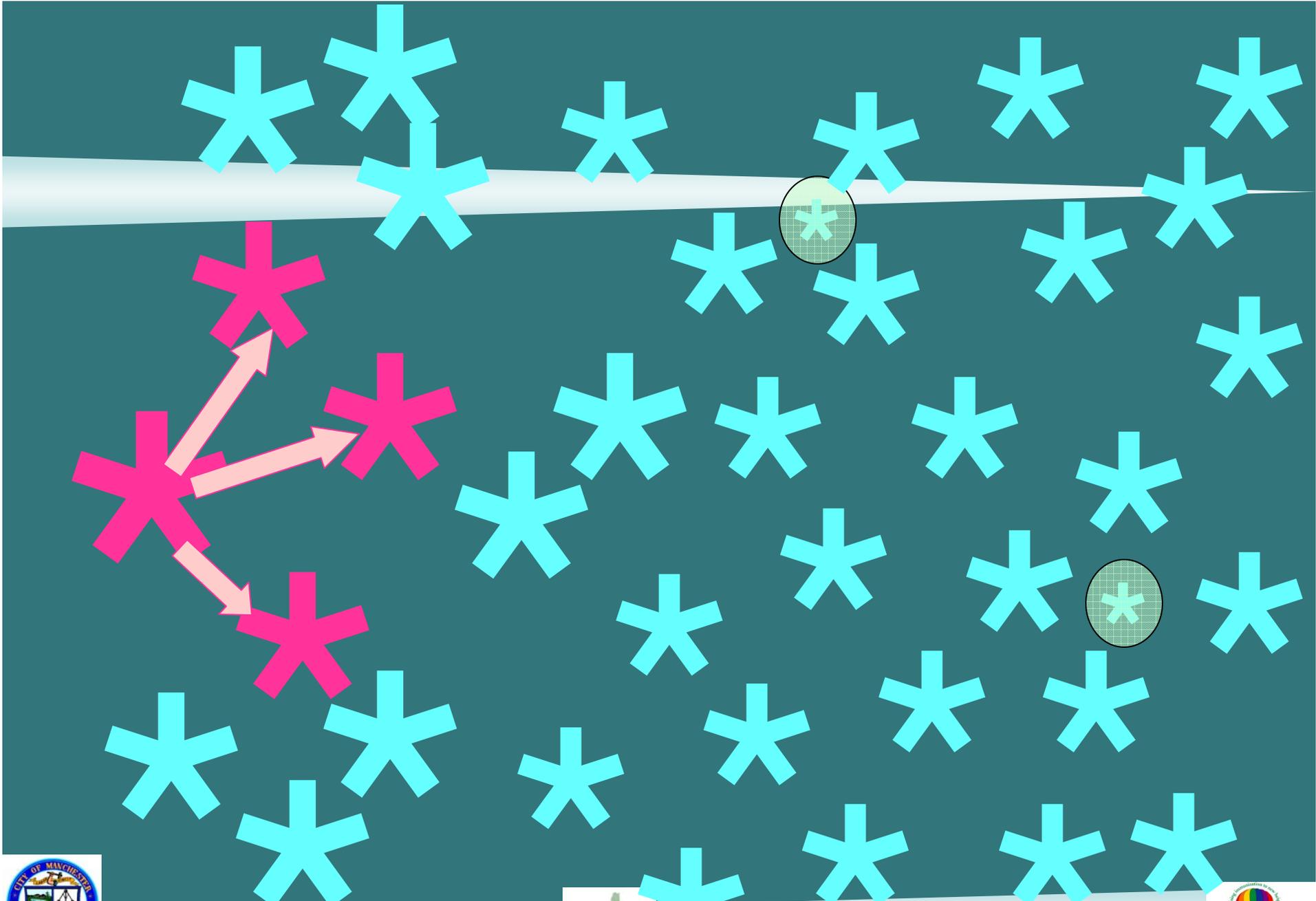
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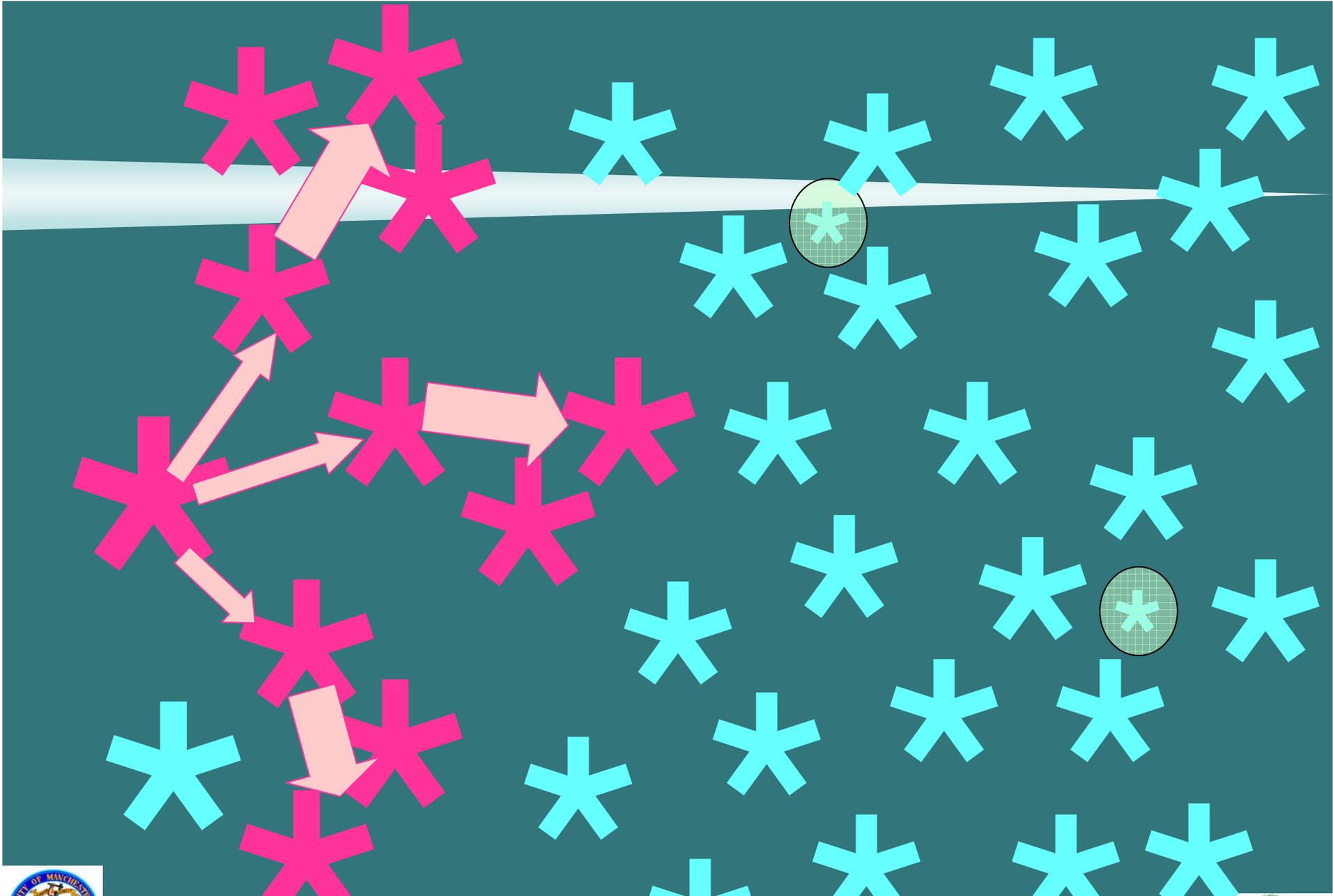


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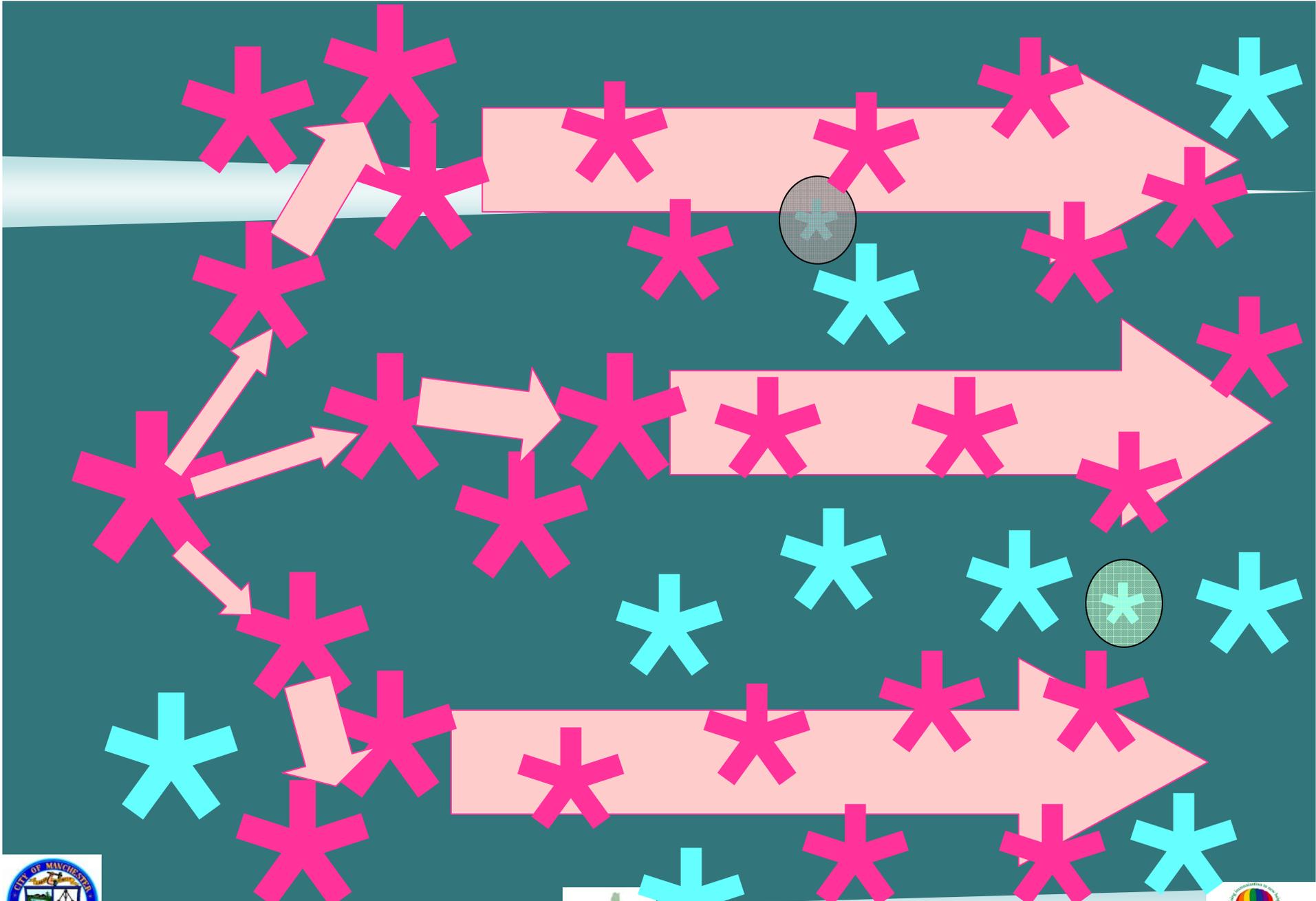


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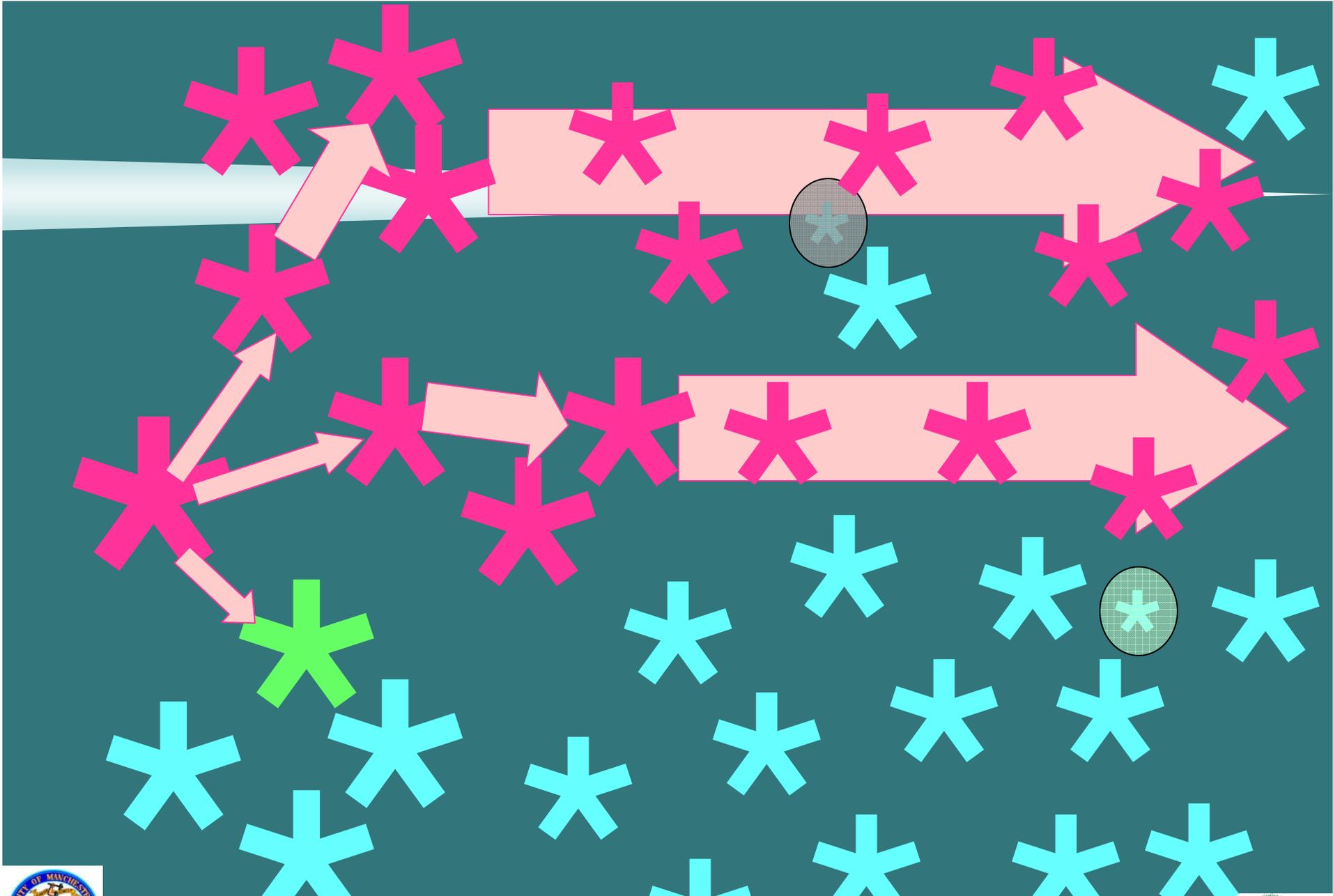
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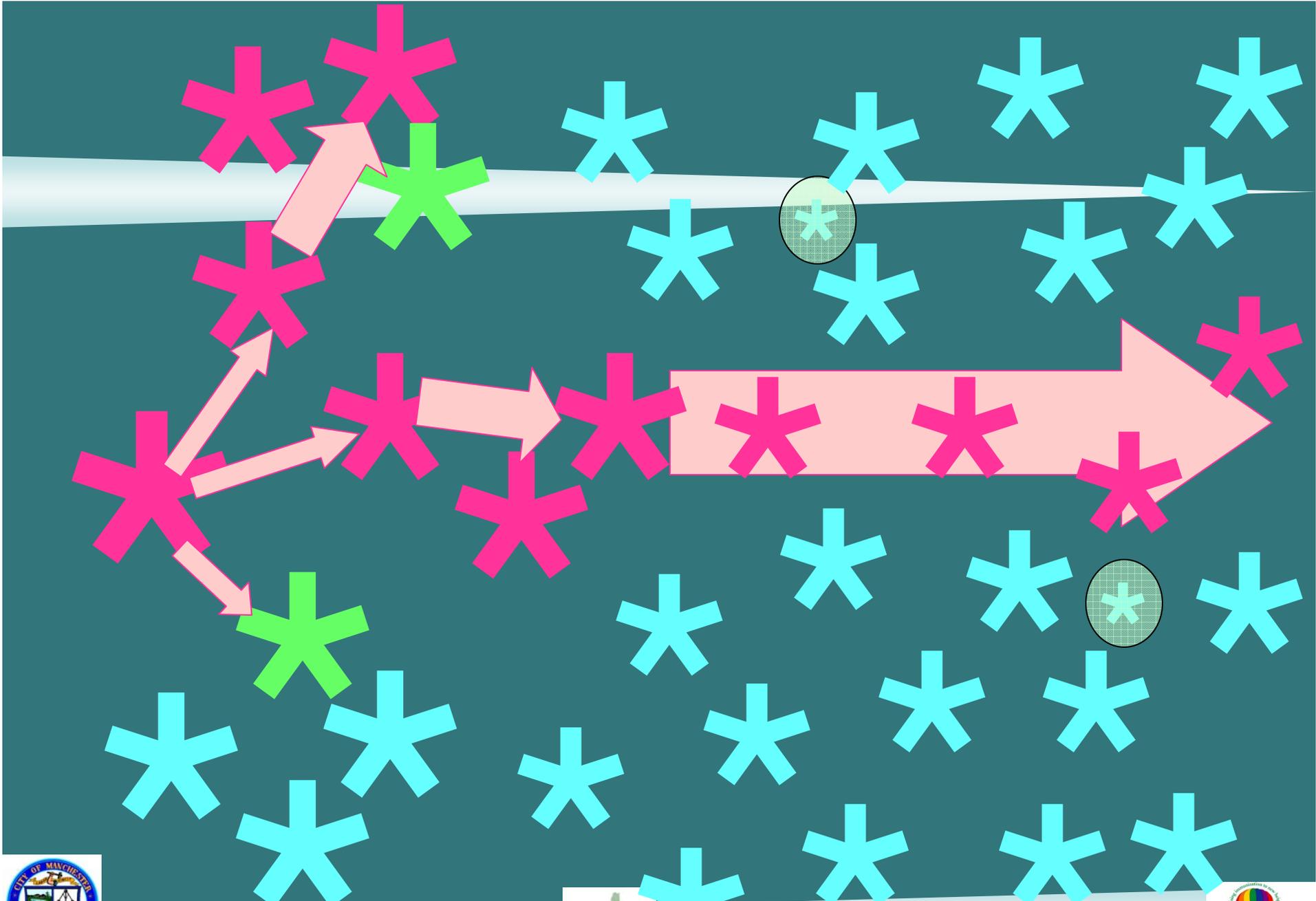
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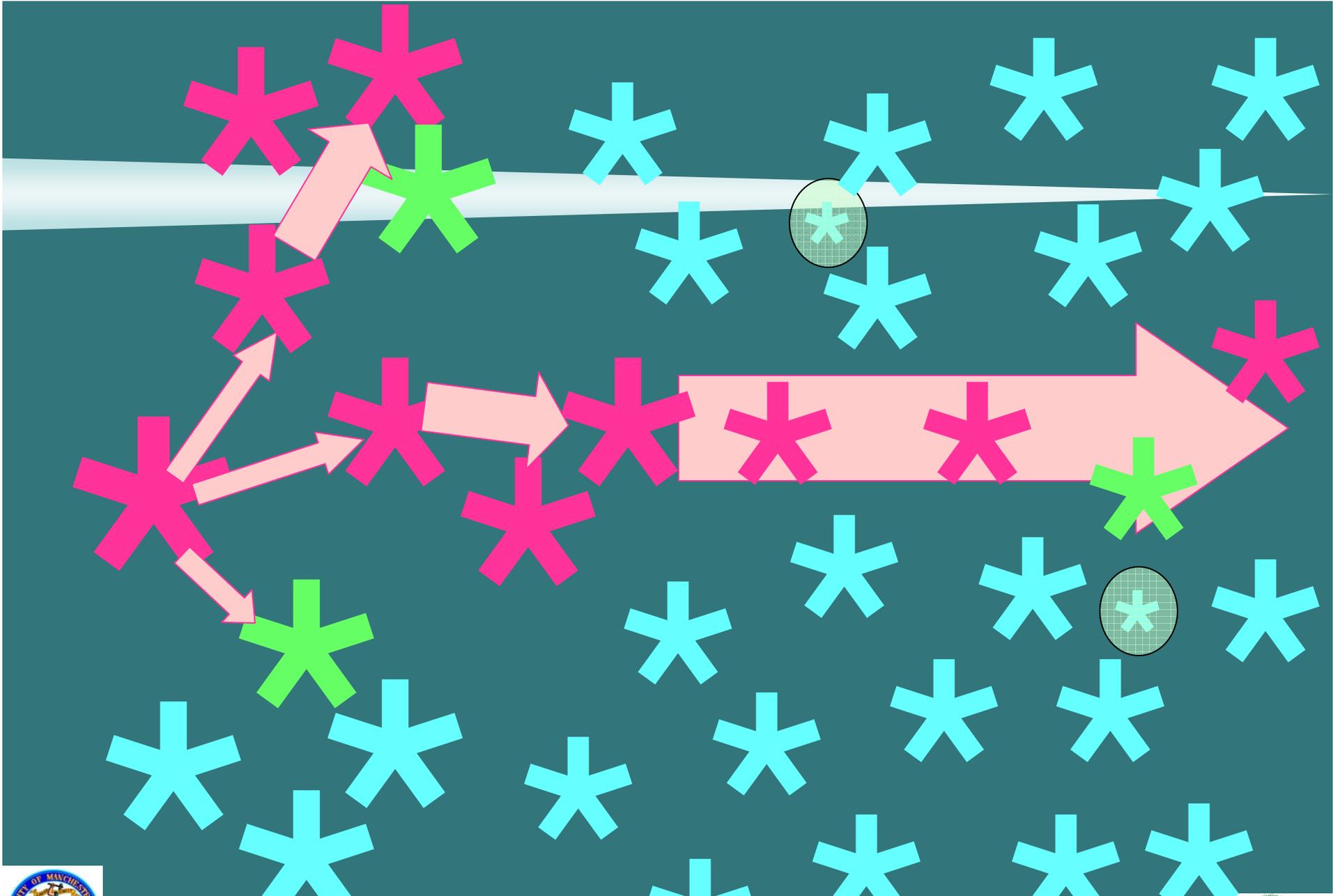


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Vaccines for babies (birth to 6 months)

- Hepatitis B—series of 3
- Diphtheria-Tetanus-Pertussis (DTaP)—series of 3
- Polio (IVP)—series of 3
- Haemophilus Influenza B (Hib)—series of 3
- Pneumococcal (PCV)—series of 3
- Rotavirus—series of 2 or 3
- Seasonal influenza (6 months and older)



Vaccines for toddlers (12-24 months)

- Hepatitis A—series of 2
- Measles, Mumps, Rubella (MMR)
- Varicella (chickenpox)
- 4th DTaP, Hib, PCV
- Seasonal influenza each year
- All baby shots if they haven't had them



Vaccines for elementary school

- 5th DTaP (or the baby series)
- 4th Polio (or the baby series)
- 2nd Varicella (or the series)
- 2nd MMR (or the series)
- Seasonal influenza each year



Vaccines for middle school

(11-12 years and over)

- Any series or shots missed earlier
- Tetanus, Diphtheria, Pertussis (Tdap) (if 5 years since DTaP or other Tetanus containing vaccine)
- Meningococcal
- Human Papilloma Virus (HPV) for girls—series of 3
- Seasonal influenza each year



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Vaccines for adults (19 years and over)

- Tetanus, Diphtheria, Pertussis (Tdap) booster
 - If no Tdap prior
 - There is no minimum interval after Td when getting Tdap
- Tetanus and Diphtheria (Td) every 10 years
- MMR and Varicella (if they haven't had them)
- Seasonal influenza each year
- HPV series for women 19-26 years (if not done already)
- Shingles vaccine—50 years and older
- Pneumonia vaccine—65 years and older



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Vaccine fears and questions

- Autism—MMR vaccine
 - 1 study in 1998
 - Found **association** between MMR and autism
 - Researcher hired by families suing vaccine manufacturers
 - Suing families paid for the study
 - Evidence of manipulating data
 - Researcher's medical license revoked
 - Several later studies
 - No association between MMR and autism



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Vaccine fears and questions

- “I know someone who had the shot but got chickenpox anyway.”
 - Vaccines are generally effective for 90% of the people—not everyone.
- “I got a flu shot and it gave me the flu.”
 - It can take 2 weeks for the immune system to be ready after a vaccine.
 - Immune reaction to the shot—fever, head ache—can seem like a mild flu.



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Vaccine fears and questions

- “So many vaccines at once! The immune system will be overwhelmed and then won’t be able to respond to any of them!”
 - Viruses and bacteria in baby’s environment
 - Whole and alive
 - Hundreds every day
 - Vaccines inject tiny amounts
 - Weakened or dead
 - Do not add significantly to the load on the immune system



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Vaccine fears and questions

- Many benefits from vaccination; few risks
 - Before pertussis vaccines:
 - 1940-1945: each year about 150 cases for every 100,000 people
 - Average 4,034 deaths each year (MMWR, December 15, 2006)
 - With pertussis vaccines:
 - 1990-1993: 1.8 cases for every 100,000 people (Guris D, Strebel PM, Bardenheier B, et al. Changing epidemiology of pertussis in the United States: Increasing reported incidence among adolescents and adults, 1990-1996. Clinical Infectious Diseases, 1999;28:1230-7.)
 - 2006: 16 deaths (MMWR, May 14, 2008)
 - Vaccine Risk—DTaP
 - No deaths from vaccine reported (2006 Report of the Committee on Infectious Diseases. American Academy of Pediatrics)



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Vaccine fears and questions

- Others fears you've heard
- Other questions you have



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Addressing fears

- Respect
 - Fears are real; many, many rumors
 - Love of their child
- Explore
 - What are the specific fears?
 - What are the sources of their information?
- Educate
 - Specific information
 - Responsibility to child and others



Discussion and Practice



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Tdap

- Tetanus, diphtheria, pertussis
- Current recommendation one time Tdap at age 11 or older*
- Precautions
 - Moderate or severe illness
 - History of exaggerated local reaction (Arthus)
- Contraindication
 - History of anaphylaxis after a prior dose
 - History of encephalopathy within 7 days of a previous DTaP or DTP



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Tdap New Recommendations January 2011**

General recommendations:

- Routine: single dose of Tdap 11-18, with complete DTaP series
- All adults 19-64, if not already received Tdap
- Timing of Tdap: No minimum interval between last Td and Tdap.
- Adults 65 years and older especially with contact with infants 12 months and younger
- Children ages 7 through 9 years of age who have not completed the DTaP series.*



Tdap/Td—Tetanus

- *Clostridium tetani*
- Everywhere in the environment
- Gets in through a cut or wound
- Can happen from unclean delivery or umbilical stump
- Rare because of vaccination
- Mom's immunity protects baby at first
- Booster every 7-10 years through life



Tdap/Td—Diphtheria

- Bacteria spread person-to-person
- Respiratory or sores on the skin
- Can block throat, trachea (wind pipe) or lungs
- Can infect heart, kidneys, nervous system
- Results in death 5-10% of cases
- Rare because of vaccination
- Booster every 10 years through life



Tdap—Pertussis

- “Whooping Cough”
- Transmitted by cough/sneeze droplets
- Highly infectious—80-90% among exposed, non-immune contacts
- May be mild illness but still infectious
- May be infectious for more than 6 weeks



Tdap—Pertussis

- Begins like a mild cold
- Proceeds to prolonged coughing
 - Intense coughing spasms
 - Inspiratory “whoop”
 - Vomiting
 - Turning blue
 - 1 of every 250 cases of pertussis results in brain damage (www.pkids.org)
 - Cough may last 6 weeks or longer



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Tdap—Pertussis

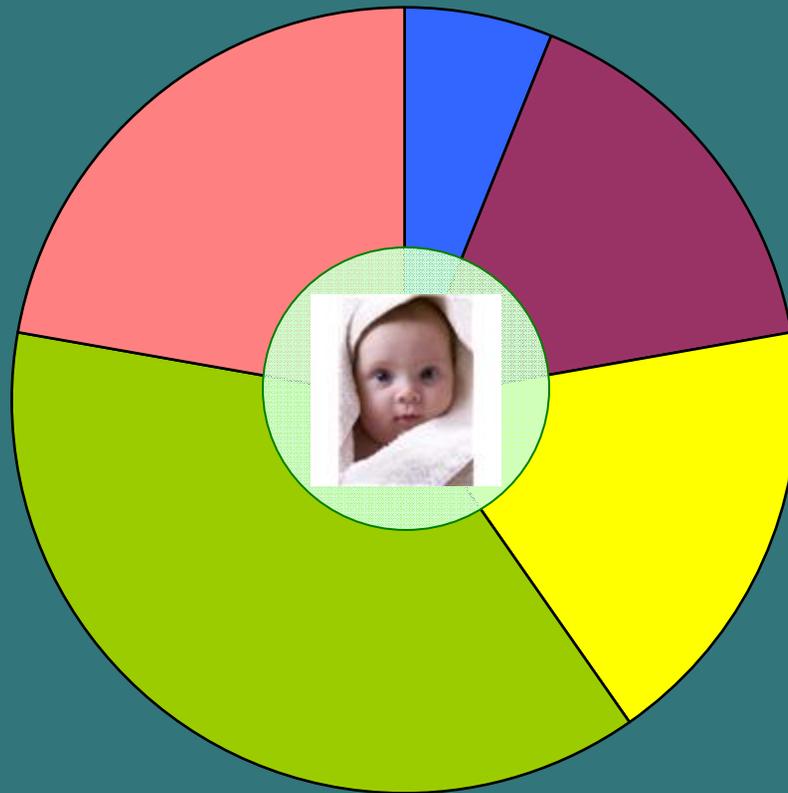
- Adults and adolescents may miss work/school
- Most complications and deaths are infants before completing vaccine series
- Other risk factors
 - Premature infants
 - Low birth weight babies
 - Hispanic babies
 - Outbreak in California in 2010, 10 infant deaths, 5 were Hispanic babies
 - Low vaccination rates?



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Pertussis—Who gives it to baby?



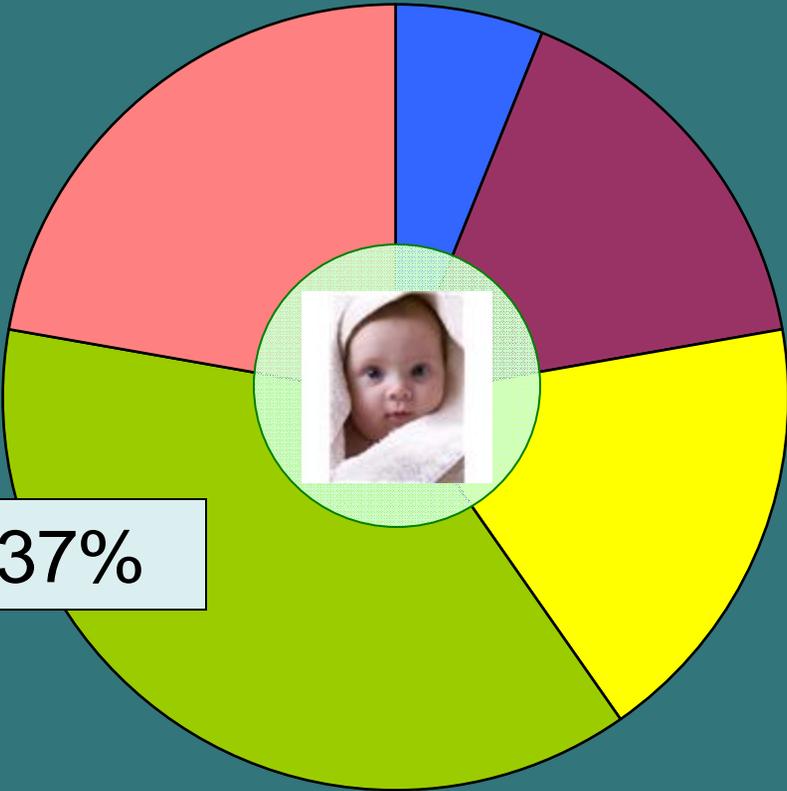
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Pertussis—Who gives it to baby?



Mothers 37%

Data from Wendelboe AM, Njamkepo E, Bourillon A, et al. Transmission of Bordetella pertussis to young infants. *Pediatric Infectious Diseases Journal*, 2007;26:293-299.



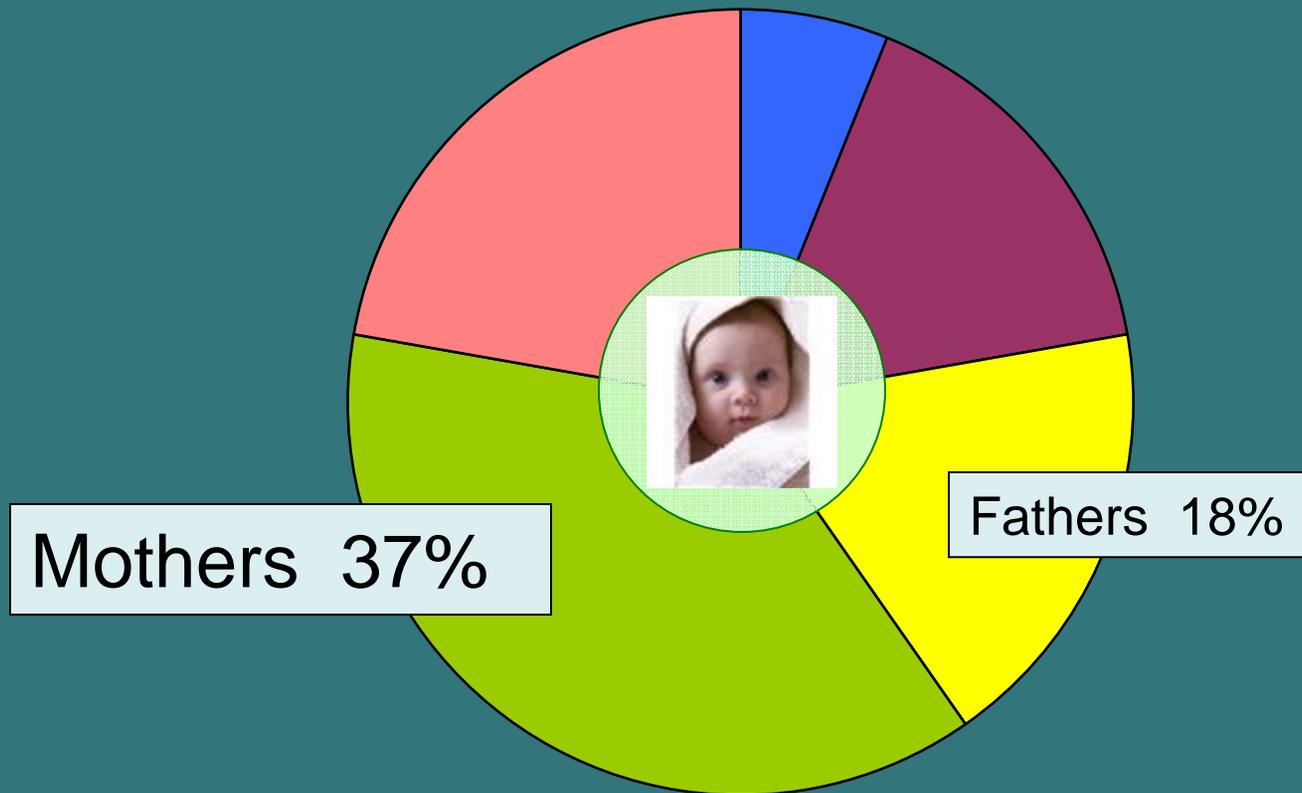
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Pertussis—Who gives it to baby?



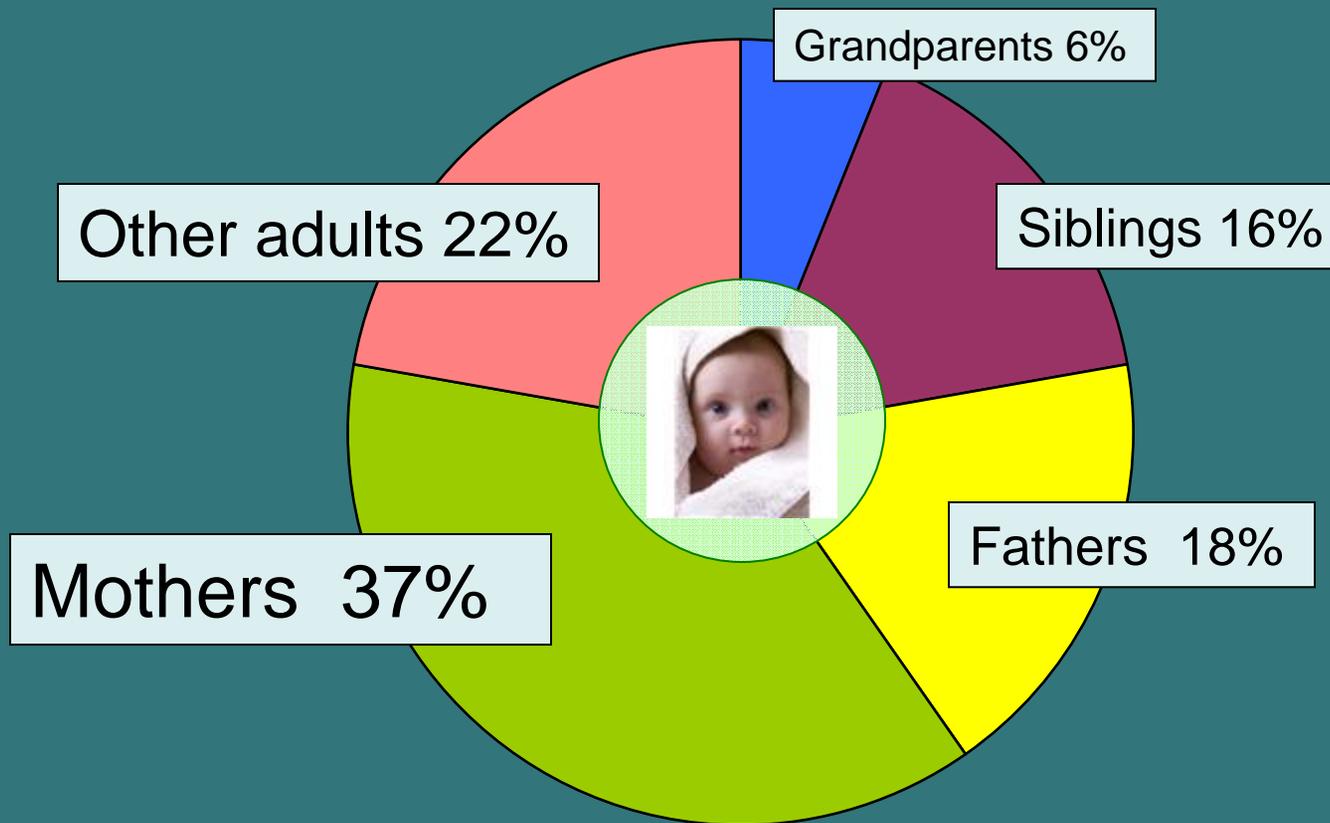
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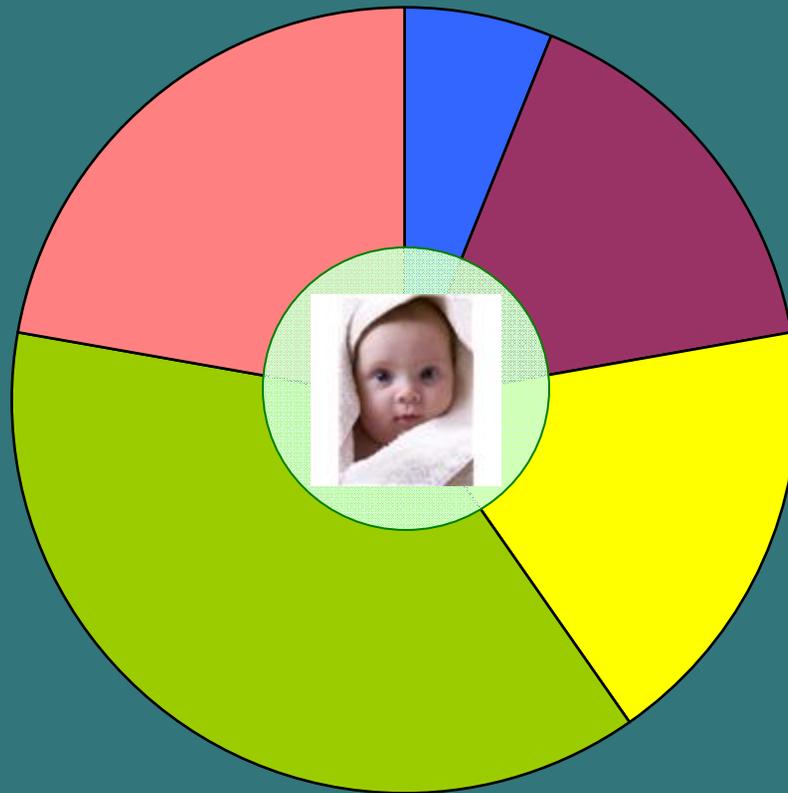
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Pertussis—Who gives it to baby?



Pertussis— How can we protect babies?



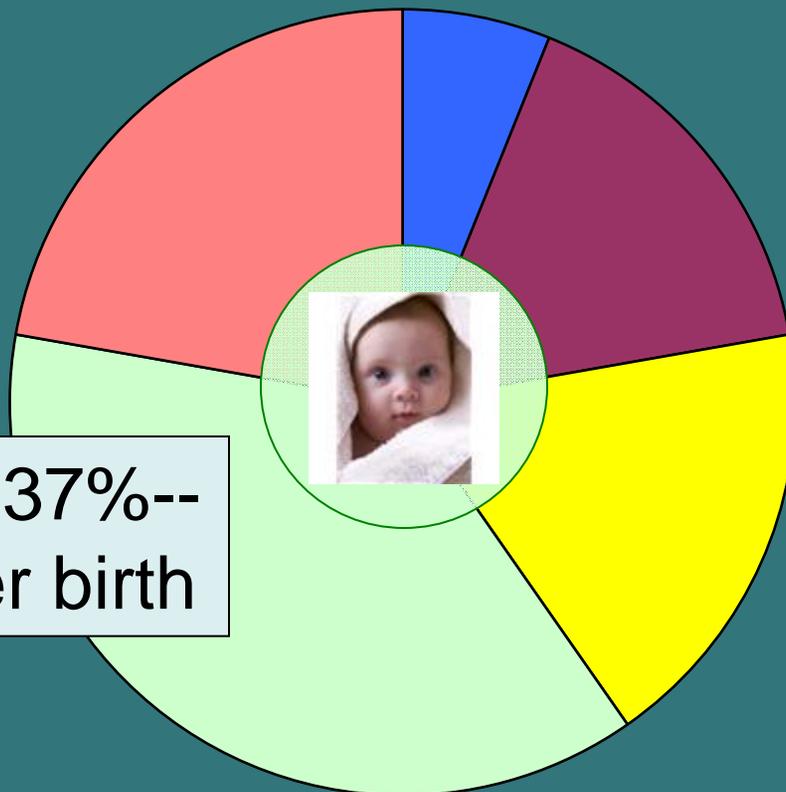
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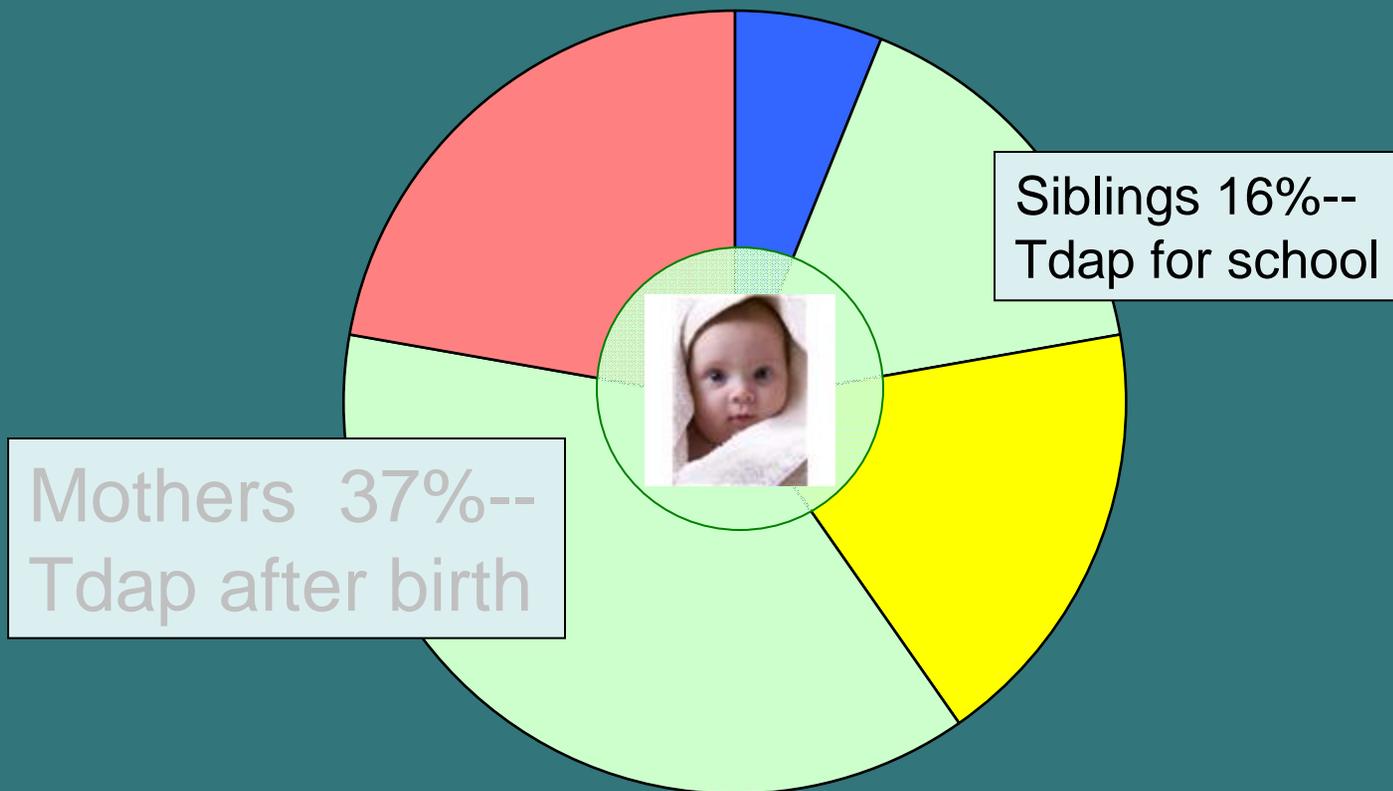
Pertussis— How can we protect babies?



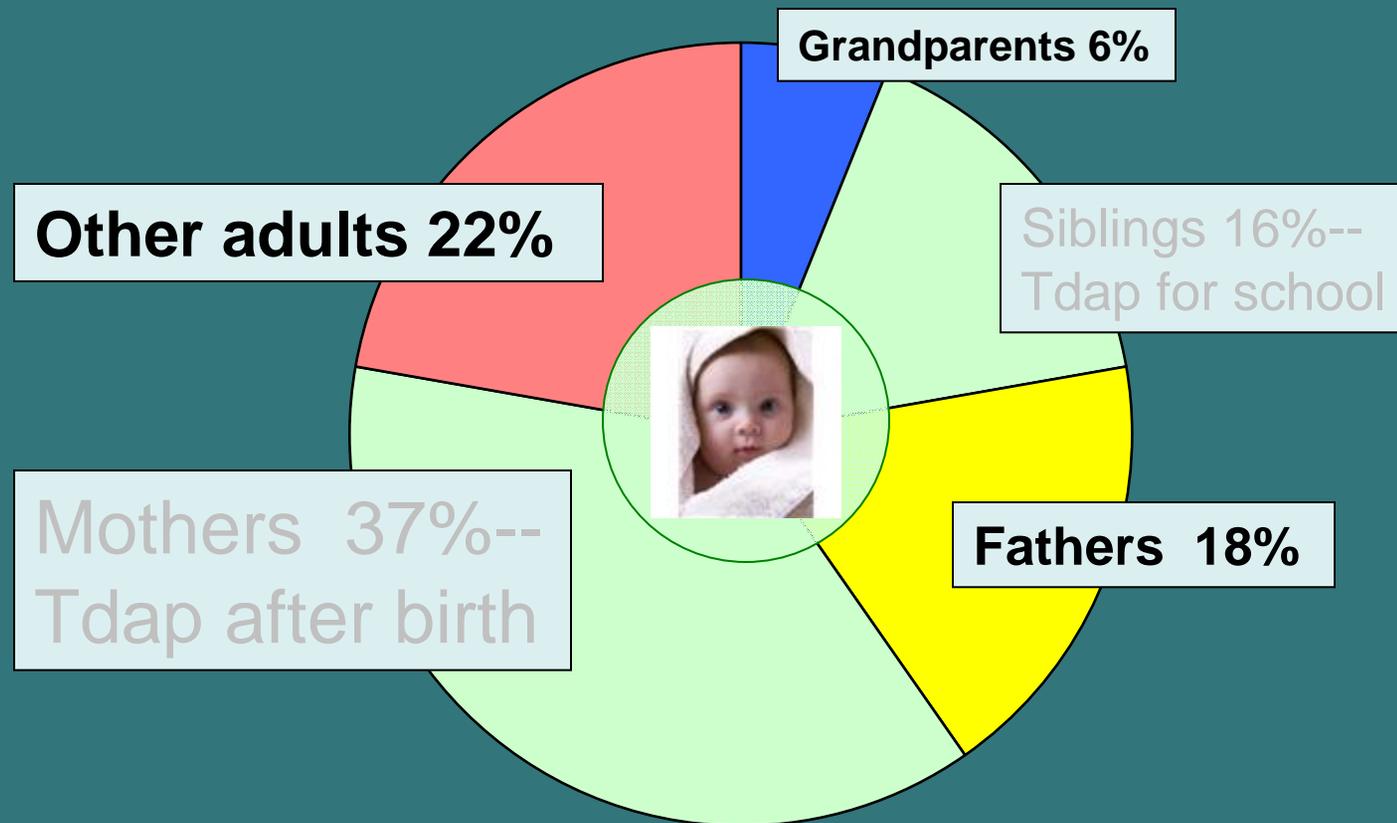
Mothers 37%--
Tdap after birth



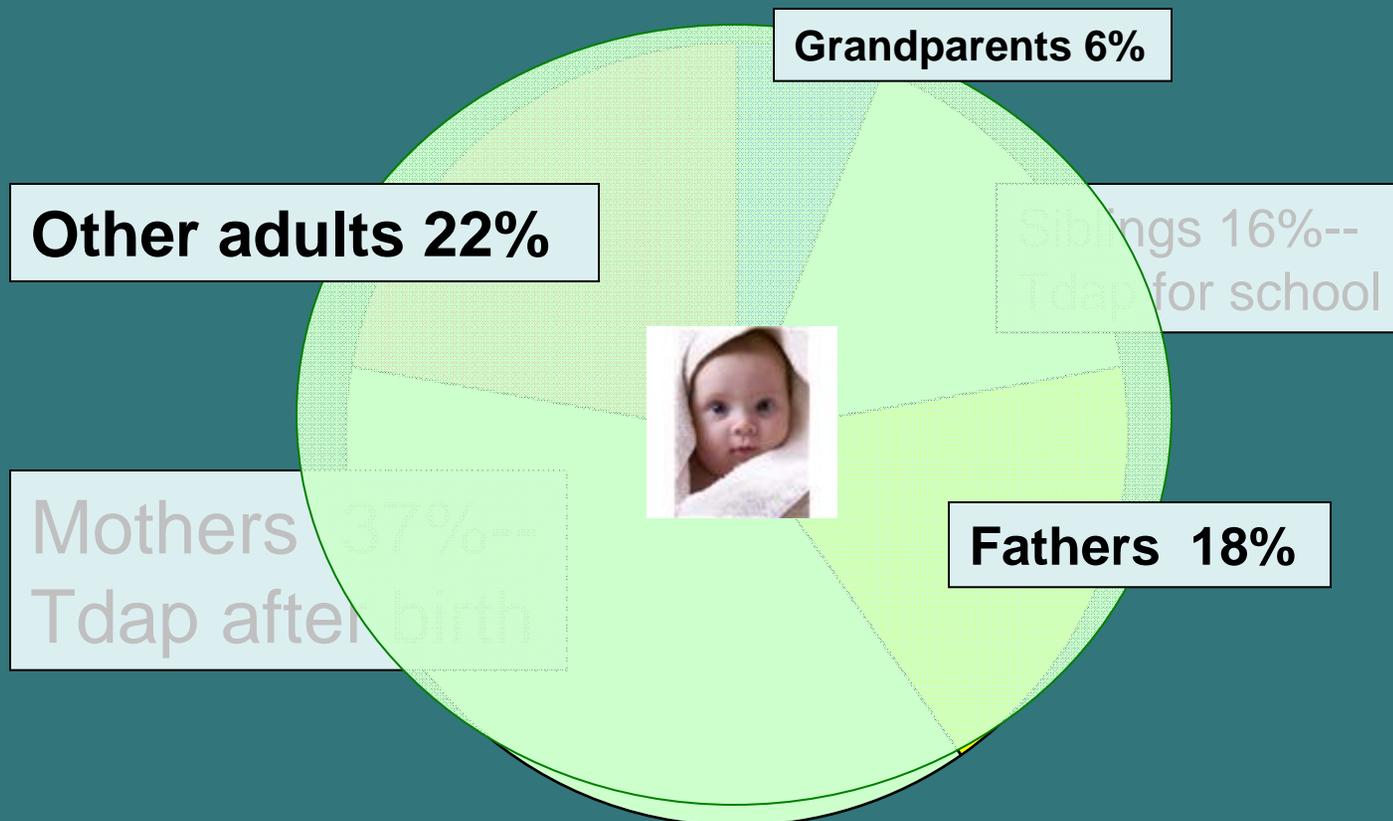
Pertussis— How can we protect babies?



Pertussis— How can we protect babies?



Pertussis— How can we protect babies?



Tdap

Other adults 22%

Grandparents 6%

Siblings 16%--
Tdap for school

Mothers 37%--



Fathers 18%

What will you do to protect babies?



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References

- The information in these slides was adapted from the following resources:
- Centers for Disease Control and Prevention, Epidemiology and Prevention of Vaccine-Preventable Diseases. Atkinson W, Wolfe, Hamborsky J, McIntyre L, eds. 11 ed. Washington DC: Public Health Foundation , 2009. Chapters 1-5, 14, 19.
- American Academy of Pediatrics. Section 1, pp1-41, Section 3, pp 277-81, 498-520, 648-54. Pickering LK, Baker CJ, Long SS, McMillan JA eds. Red Book Report of the Committee on Infectious Disease. 2006 American Academy of Pediatric.
- CDC and Prevention. Preventing Tetanus, Diphtheria, and Acellular Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine. MMWR 12,15,2006:55 (rr17); 1-33
- CDC and Prevention. Preventing Tetanus, Diphtheria, and Acellular Pertussis Among pregnant and Postpartum Women and Their Infants. MMWR 2008:57(No. RR4);1-35

