

IMPACT OF LEAD POISONING — IS YOUR HOME LEAD FREE?

Introduction

Within the United States, residential homes built prior to 1950 had 50% lead in the paint. From 1950 – 1977 paint manufacturers voluntarily began to reduce the amount of lead paint in their product. Since 1978 MA prohibited the use of lead paint in homes. The law specifically states the following:

“...removal or covering of lead paint hazards in homes built before **1978** where any children under six live. Lead paint hazards include loose lead paint and lead paint on windows and other surfaces accessible to children. Owners are responsible with complying with the law. This includes owners of rental property as well as owners living in their own single family home...”

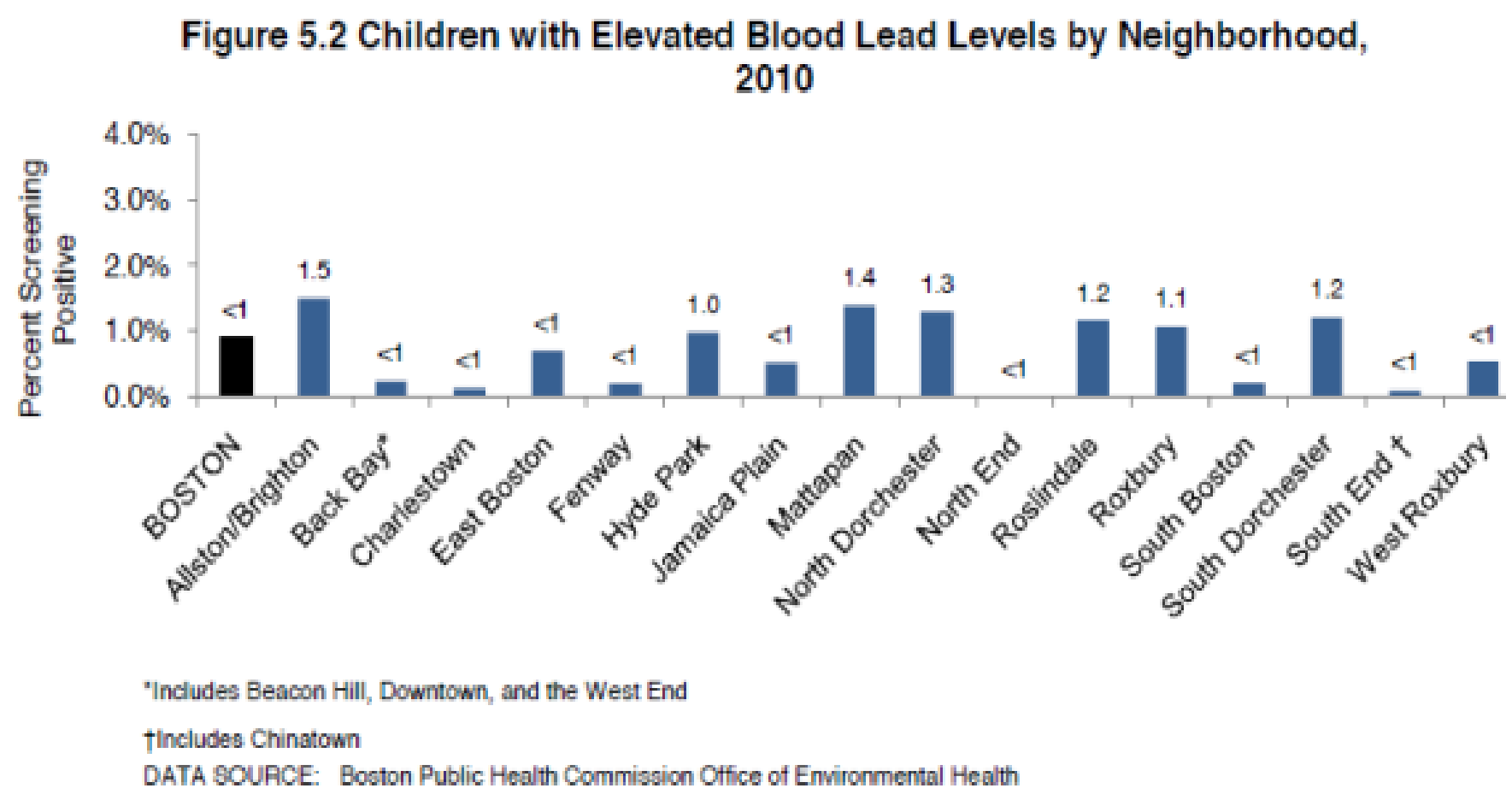


Lead poisoning is a Lead is a preventable disease, effective policy, programs and funding needs to be obtained through strategic and deliberate advocacy to solve the problem. The overall goal of this project is to establish a database to identify which residential properties might have lead paint, whether children are threat of exposure for children and take the necessary steps to remove the lead paint.

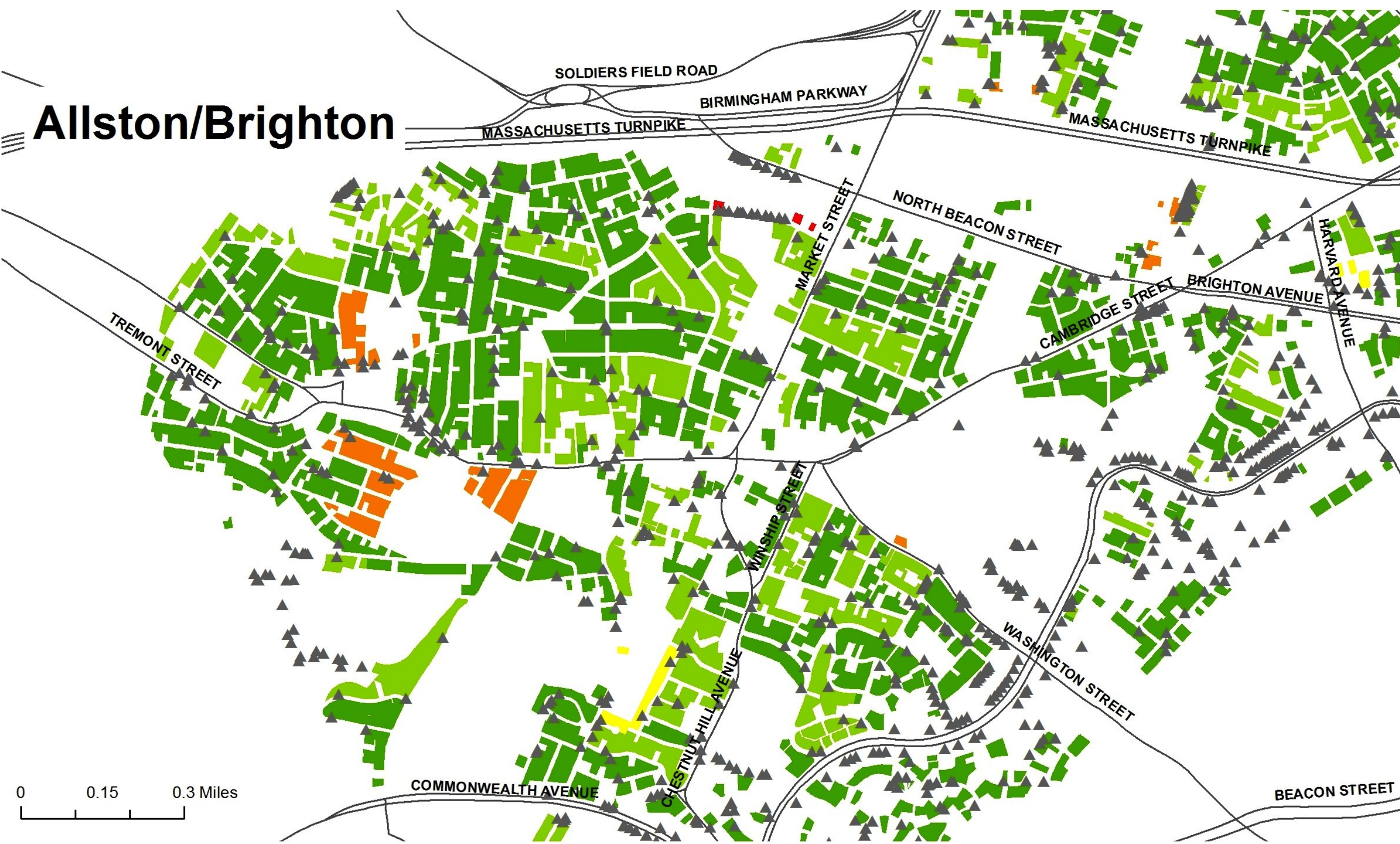
Project Description

To create a **City of Boston, Lead Poisoning Database** to frame research and spatial questions, reveal relationships, patterns, and trends that will allow someone to identify strategies, plans and reports, create maps, charts, and advocate for public policy and funding to prevent and eliminate current and future lead poisoning residential properties of Boston.

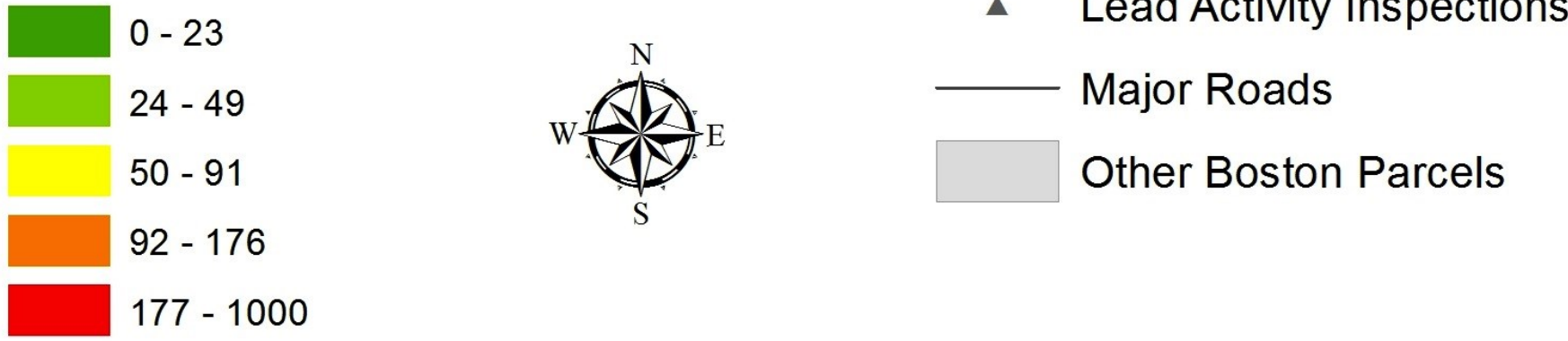
Results: Children With Highest Elevated Blood Lead Levels / Impact of Lead Poisoning / Database Example: Allston Brighton



Neighborhood Section — Lead Paint Inspections Overlay with: Residential Parcels (Pre-1978) and Children By Census Block Joined



Pre-1978 Lead Built Residential Property and Number of Children Joined



Adult Reactions to Lead (micrograms per deciliter)

Blood Lead Level	Possible Health Effects
15 ug/dL	Increase in blood pressure; harmful effects on fetus; joint and muscle aches
25 ug/dL	Reproductive problems
40 ug/dL	Kidney damage; damage to blood formation
60 ug/dL	Anemia; nerve damage; constipation; stomach pains; irritability and fatigue; memory and concentration problems; clumsiness; drowsiness and sleep problems
80 ug/dL & above	Blue line on gums; uncontrollable shaking of hands; wrist and foot drop; hallucinations; brain damage; coma; death

Source: ATSDR; California Health Dept 1993

Impact of Lead Poisoning



Child Reactions to Lead (micrograms per deciliter)

Blood Lead Level	Possible Health Effects
10 ug/dL	Slight loss in IQ; hearing and growth problems
20 ug/dL	Moderate loss in IQ; hyperactivity; poor attention span; difficulty learning; language and speech problems; slower reflexes
40 ug/dL	Poor bone and muscle development; clumsiness; lack of coordination; early anemia; fewer red blood cells to carry oxygen and iron; tiredness; drowsiness
50 ug/dL	Stomach aches and cramps; anemia; destruction of red blood cells; brain damage
100 ug/dL & above	Swelling of the brain; seizures; coma; death

What To Do If You Have Lead Poisoning

- 1. Use a certified Lead Testing Kit or have a professional test your home for potential lead.**
- 2. Check the Toys/Remove Toy**—Start by visiting this [Consumer Product Safety Commission Website](#), which allows you to search for toys and other products that have been recalled for safety reasons. Specifically look for toys and children's products that have been recalled because of lead.
- 3. Consider Other Sources**—The three leading causes of childhood exposure to lead are deteriorating lead-based paint in buildings, lead-contaminated dust in older buildings and lead-contaminated soil outside the home.
- 4. Maintain Older Homes**—Frequently use a damp mop to remove dust and keep older paint from peeling and cracking. And wash children's hands frequently – *before* any lead-tainted dust on their fingers gets into their mouths.
- 5. Have Your Child's Blood Lead Level Tested**—Ask your pediatrician to test your child's blood for lead. This is a test that should be routine, and any pediatrician should be able to do this. The risk of damage from exposure to lead is greatest when children are age 6 and under. The damage to the brain can be irreversible, so early diagnosis of elevated blood level is critical so parents can take steps to reduce or eliminate the exposure. Approximately 310,000 U.S. children between the ages of one and five have blood lead levels greater than 10 micrograms of lead per deciliter of blood. At that level, the CDC recommends parents take action to identify and reduce exposure. Do not take these test results lightly. If testing shows an elevated blood-lead level, take immediate action to identify potential sources of lead at home, the homes of family members, day care centers, schools or any other places where children spend time.
- 6. Ensure Good Nutrition**—Ensure your child is eating a healthy diet, and particularly that he or she is eating the recommended amounts of calcium and iron. A child with an iron deficiency can absorb up to 50% more lead than one with adequate iron in the diet. Good sources of iron include fortified cereals, meat, legumes, prunes, raisins green leafy vegetables, and iron is best absorbed by the body if consumed with foods high in vitamin C. Similarly, as calcium intake increases, the body absorbs less lead, so diets high in calcium are important for children exposed to lead.
- 7. Check to verify whether your home has a De-Lead Certificate at <http://webapps.ehs.state.ma.us/Leadsafehomes/default.aspx>.**

Source: the daily green, Dan Shapley

Research Questions

- 1.What is the impact of lead poisoning?
- 2.Which neighborhoods within the City of Boston have the highest rate of Elevated Blood Lead Levels?
- 3.Which residential parcels within the City of Boston, with potentially children 0 – 18, are at risk from lead poisoning?
- 4.Which residential parcels need inspection for lead poisoning?

Methodology

Based on an iterative process, the methodology used is:
1)Ask: Frame the Questions,
2)Acquire: Find the Data,
3) Examine the Data,
4) Analyze the Data and
5) Publish the Results.

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Data Sources:

MassGIS, U.S. Census,

MA Department of Public Health,

City of Boston Public Health Commission, Health Boston Report 2010,

CA Health Department,

ATSDR 1995

Center for Disease Control,

Coordinated System:

NAD 1983 State Plane Massachusetts Mainland FIPS 2001 Feet



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