



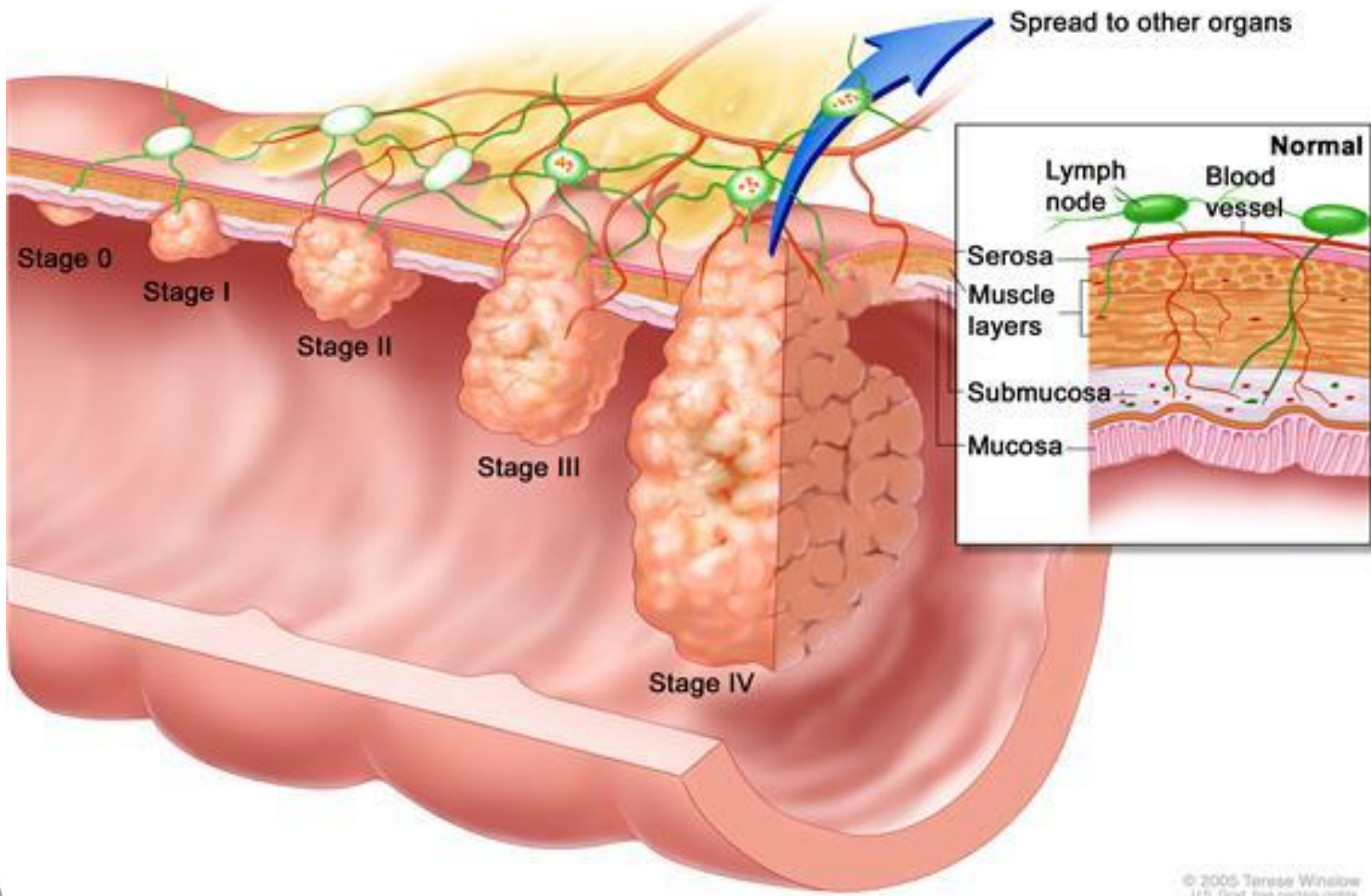
MONTANA CANCER  
CONTROL PROGRAMS

# Trends in Number of Lymph Nodes Examined in Colon Specimens

Montana Central Tumor Registry

1990-2009

# MONTANA CANCER CONTROL PROGRAMS



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Image from NCI





# Montana Central Tumor Registry

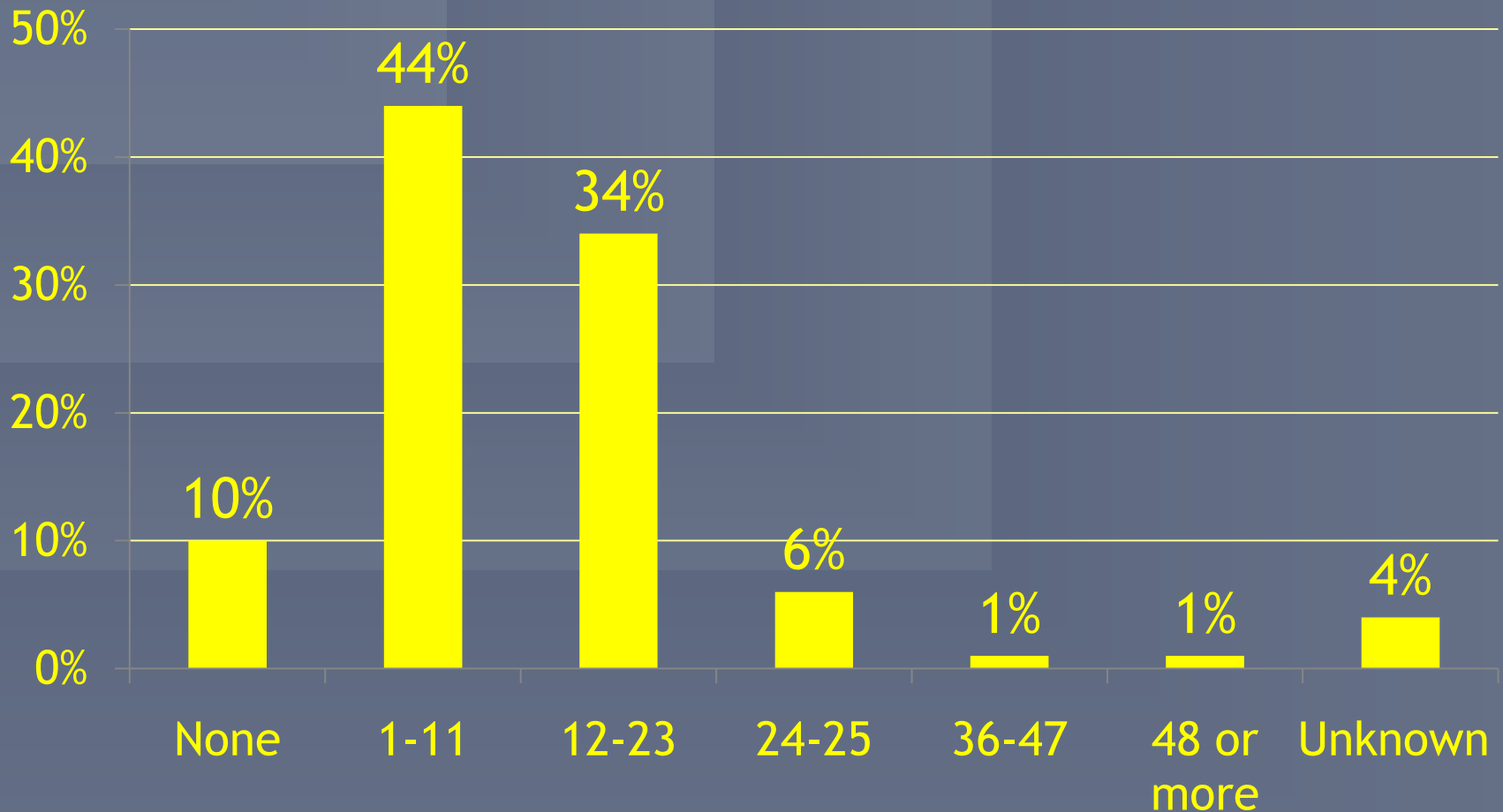
- Cases diagnosed 1990 - 2009
- Surgery in MT
- # nodes examined and # positive
- N = 5,408 colon cancers



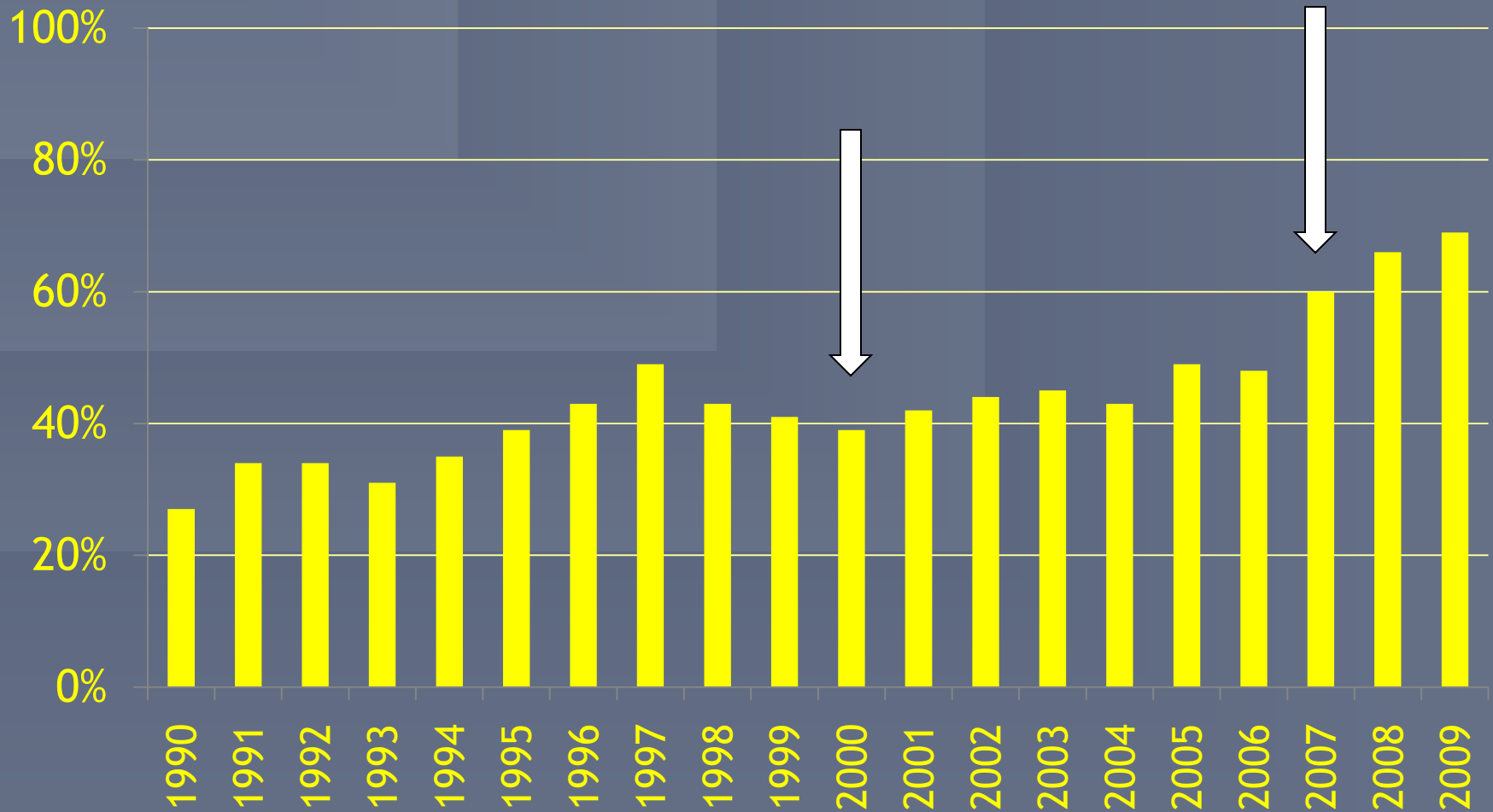
# Exclusions

- Autopsy or death certificate only
- No surgery
- Missing info on nodes
- Rectal cancers

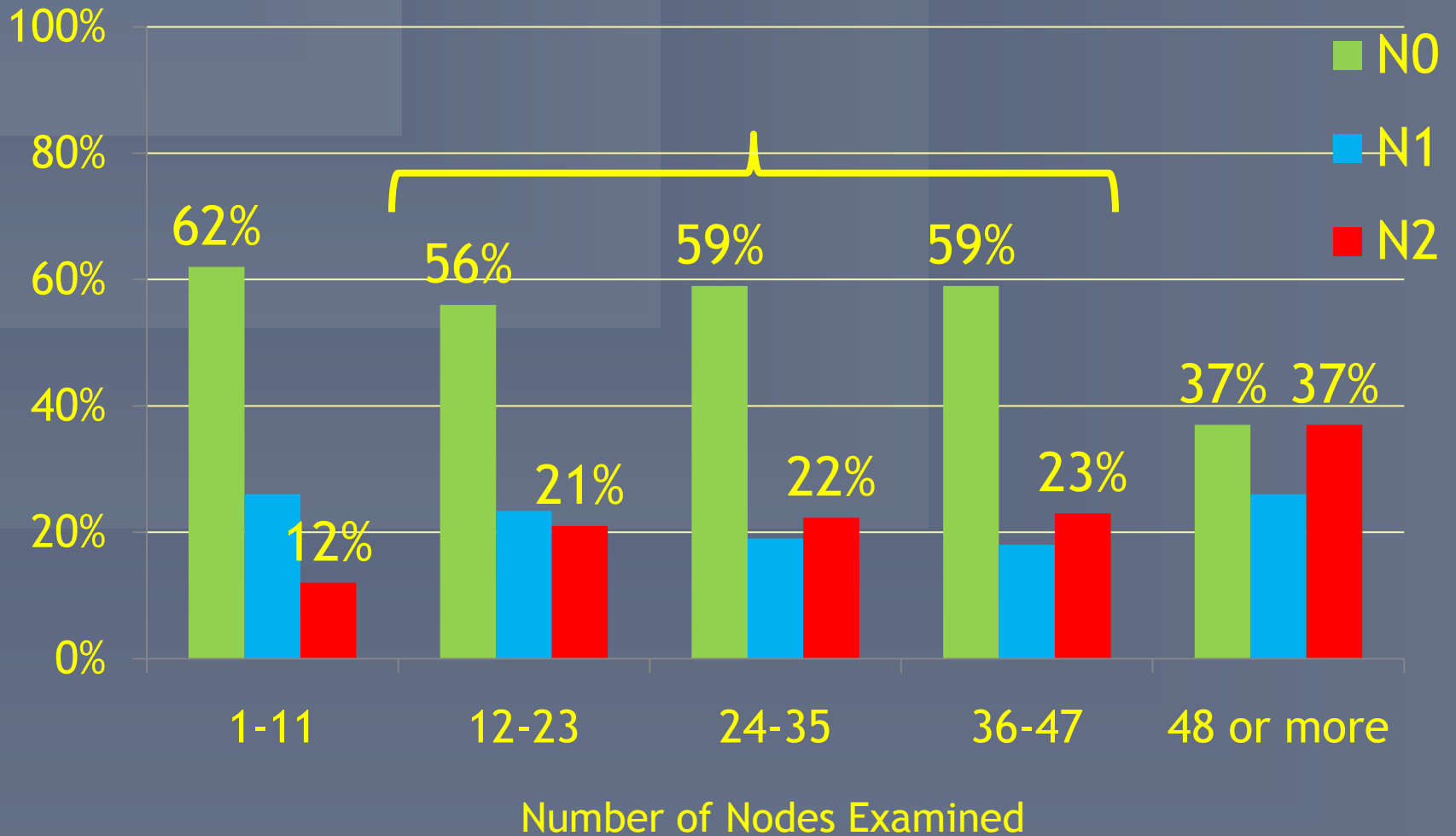
## Number of Nodes Examined Montana Central Tumor Registry, 1990-2009



# 12 or More Nodes Examined by Year Montana Central Tumor Registry, 1990-2009



# Node Positive Status by Nodes Examined Montana Central Tumor Registry, 1990-2009





# All things considered....

- Statistical model
  - Multivariate regression
  - Years survival as function of
  - Several independent variables
  - Effect of each, holding all others constant



# Factors Included

- Year of diagnosis
- Sex
- Age
- Stage
- Tumor maximum dimension
- Differentiation
- Histology (very few non adeno- )
- Adjuvant chemo or radiation



# Factors Affecting Survival

- Female sex 21%
  - Year of age - 4%
  - Regional - 50%
  - Distant - 138%
  - Poor differentiation - 32%
  - Each positive node - 3%
  - Each node examined 2%
- All significant at  $p < .01$



# Why is Number of Nodes Examined Important?

- More nodes examined, greater chance to find positive nodes.
- Several studies found # nodes removed independently associated with outcome.
  - Proxy for completeness of excision of tumor ?



# Summary

- Montana surgeons and pathologists responded quickly to 2007 endorsement of 12 or more lymph nodes
- In 2009, 69% of colon specimens yielded 12 or more lymph nodes