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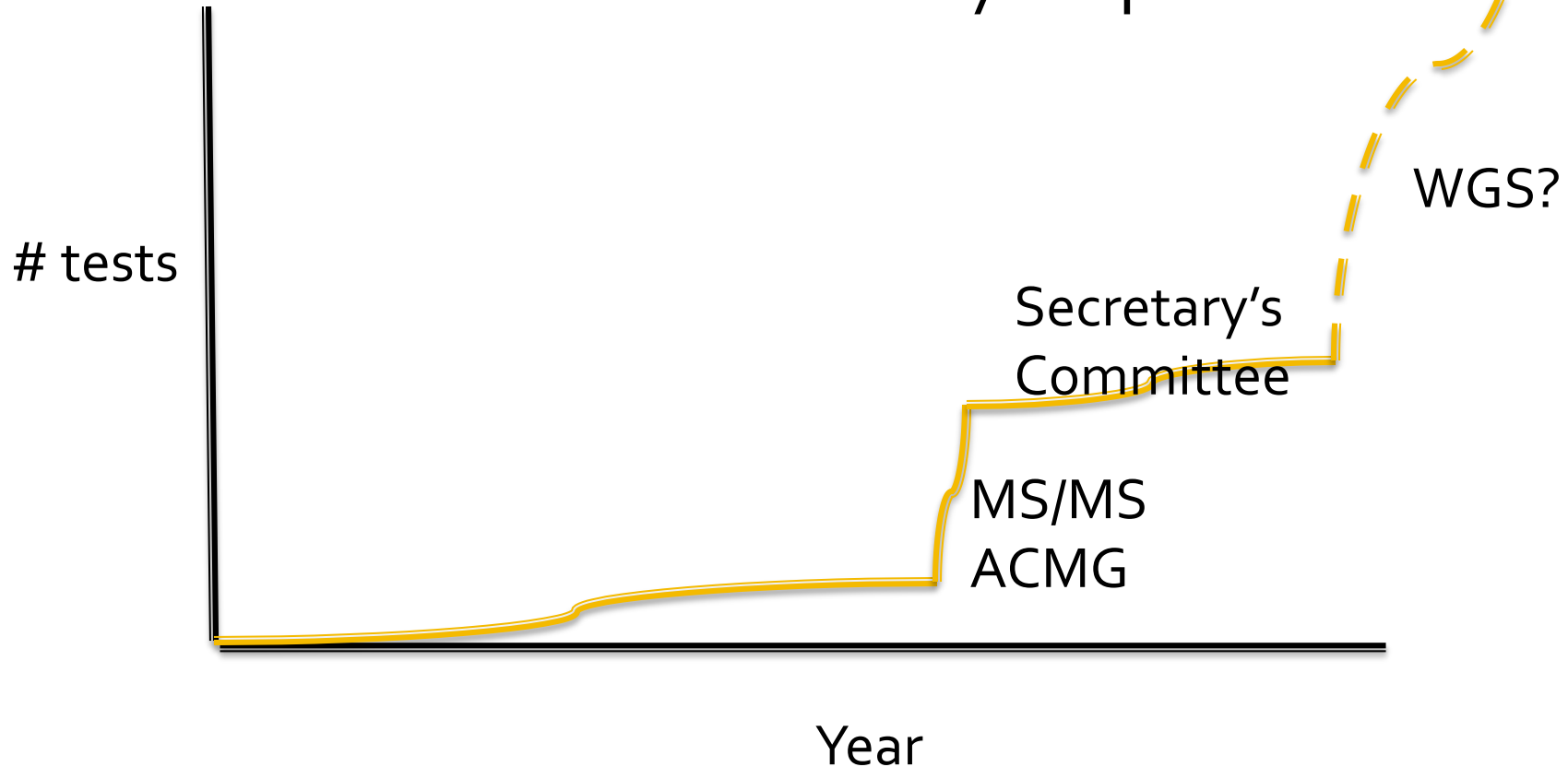
Whole Genomic Sequencing for Newborn Screening

A starting place

- Generally accepted criteria for NBS –
 - Screening is necessary shortly after birth but prior to the onset of symptoms to permit effective intervention to prevent harm
- There has been some debate about what constitutes actionability
- History of variable reliance on evidence and politics

Advances in technology have had a tremendous impact

- Choices are made at every step



Is WGS going to be part of state-run newborn screening programs?

- Francis Collins is “almost certain . . . that complete genome sequencing will become part of newborn screening in the next few years.”

The Language of Life: DNA and the Revolution in Personalized Medicine. New York, NY, Harper Collins (2010) at 208

Some foreseeable issues with WGS

- Proposals from the debate about incidental findings in research about what people should receive
 - Clinically actionable
 - Reproductive value
 - Personally meaningful
 - Everything?

Some foreseeable issues with WGS

- ACMG recently recommended that labs performing WGS for a clinical indication must report mutations known (or predicted to be) pathogenic in 56 genes, most of which do not require intervention during early childhood and even until adulthood
- If applied to NBS, would conflict directly with ethical norms of NBS and pediatric genetic testing

Some foreseeable issues with WGS

- Who would be responsible for deciding which results to return?
 - Complex scientifically as well as in health care delivery
- Where would these data reside?
- Would they be reexamined from time to time?
 - This has not been the practice of NBS or of medical practice generally

Concluding thoughts

- Using WGS in NBS will require choices about what is reported and what is not
- Criteria for choosing will be critical
- A fundamental question is whether WGS will be worth the difficult issues it will raise