

A Mini-Sentinel Assessment of FDA Regulatory Policies for Long Acting Beta₂ Agonists

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On behalf of the Mini-Sentinel LABA Workgroup

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Mini-Sentinel LABA Workgroup

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Mini-Sentinel Partner Organizations



Mini-Sentinel Key Feature

- ❑ Assessment of the impact of FDA actions on utilization of medical products

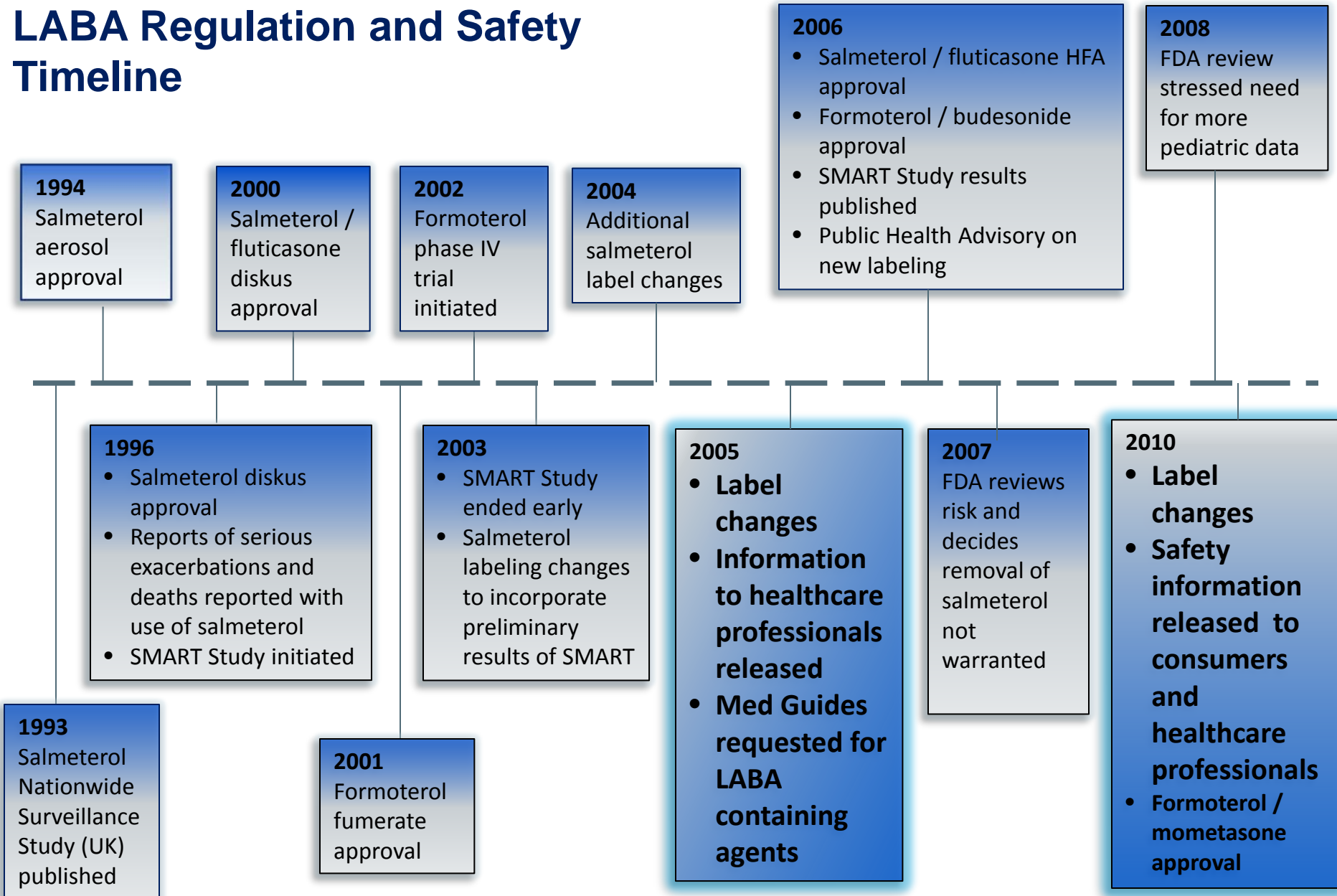
Long Acting Beta₂ Agonists

❑ Mechanism of Action and Use

- LABA are bronchodilators that relax the smooth muscle of the airways of the lungs
- The onset of action tends to take longer and the duration of action is longer than short-acting beta₂ agonists
- LABA are approved for treating both asthma and COPD
- LABA may be steroid-sparing

❑ Safety concerns in asthma began in the 1990s

LABA Regulation and Safety Timeline



Overarching Goals of the Project

- ❑ **To assess the impact of the FDA 2010 regulatory action on LABA drug utilization patterns**
 - Population based prevalent use of asthma medications
 - Population based initiation of LABA products
 - Characteristics of LABA initiation and course of therapy
 - Uptake of use of combination LABA products
 - Appropriateness of LABA initiation
 - Length of therapy
 - Concomitant controller medication use
 - Characteristics of LABA discontinuation
 - Use of controller medications after discontinuation

Timeline



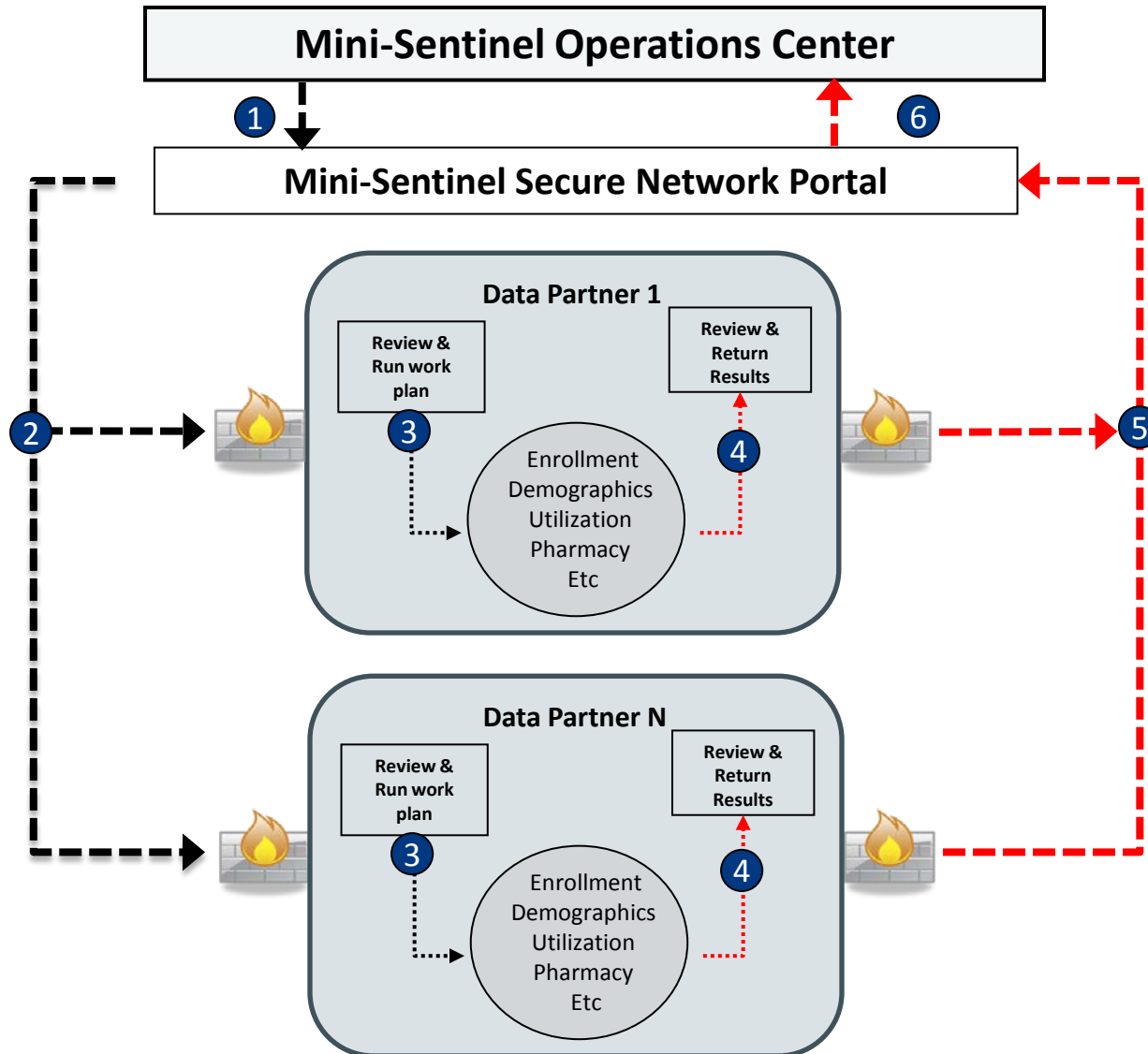
Quasi-Experimental Designs for Policy Analysis

- ❑ Pooled analyses
- ❑ Vs.
- ❑ Difference-in-difference
- ❑ Interrupted time series
- ❑ Extended Cox regression

Interrupted Time Series (ITS)

- ❑ One of the most rigorous quasi-experimental designs
- ❑ Multiple policies can be modeled over time
- ❑ ITS shows the immediate effect of a policy as well as trends over time
- ❑ The rolling cohort design allows individuals to enter and exit the study base

Mini-Sentinel Distributed Analysis

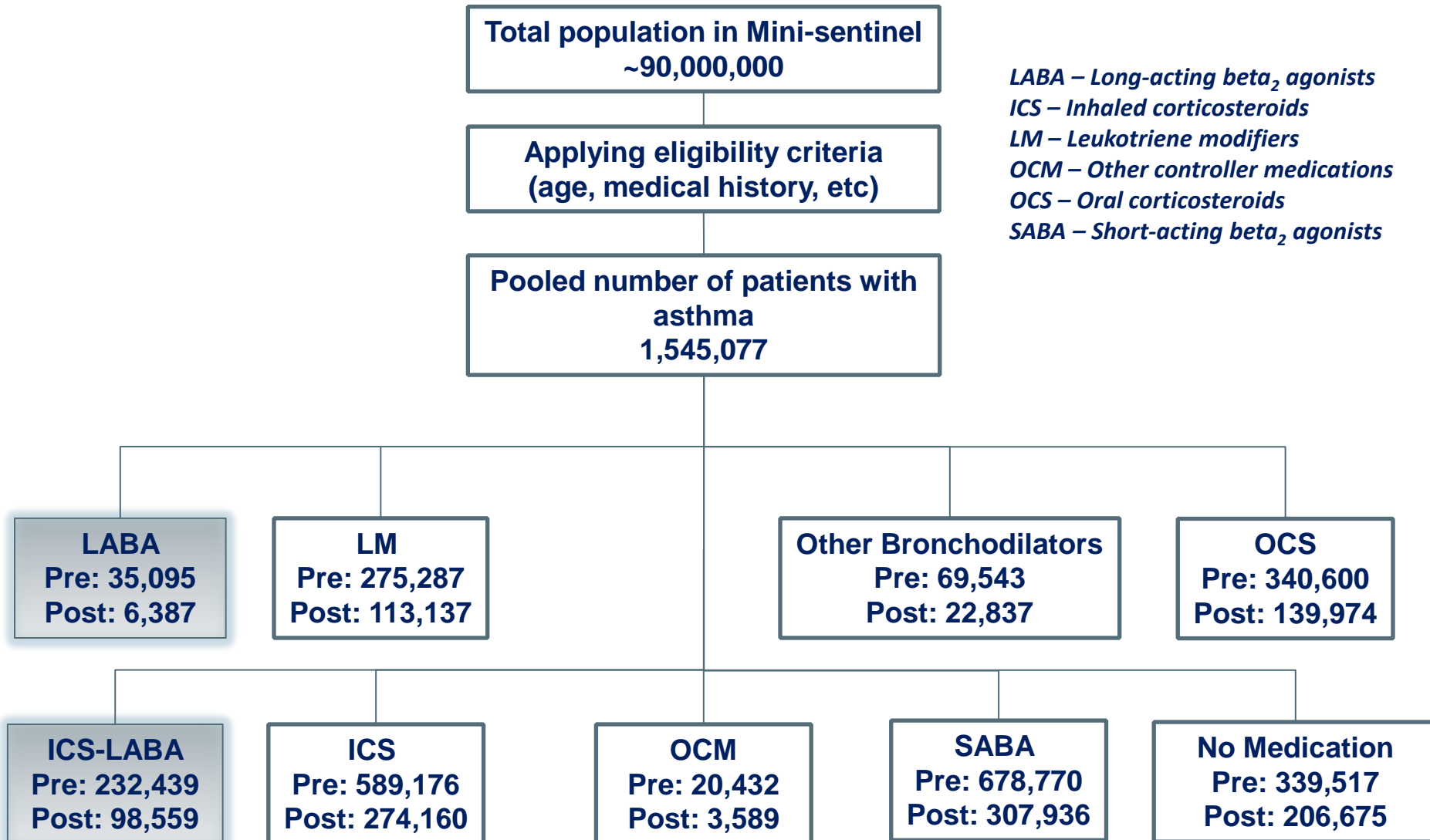


- 1 Workgroup creates and submits work plan (a computer program)
- 2 Data partners retrieve the work plan
- 3 Data partners review and run work plan against their local data
- 4 Data partners review results
- 5 Data partners return results via secure network
- 6 Results are aggregated and returned

Making Distributed Analyses Efficient

- ❑ Use of multiple definitions
 - Number of outpatient visits for asthma
 - Position of diagnosis codes for hospitalizations
 - Discontinuation
- ❑ Identifying subgroups a priori
- ❑ Programming model alternatives for model diagnostics
 - Poisson and negative binomial
- ❑ Pooling individual site data
 - Additive process for ITS
 - Meta-analysis methods for other regression methods

Cohort Creation – Pooled Results



Summary of Overarching Goals to Date

- ❑ Changes in asthma medication use were not unique to LABA during the pre and post policy periods
 - Confirms the difficulty of selecting a control group

- ❑ Changes in LABA use started prior to the 2010 regulations

Re-Use of the LABA Framework

- ❑ To assess the impact new technology on utilization of medical products
- ❑ To assess changes in delivery systems on utilization of medical products
- ❑ To assess differences in state regulations on utilization of medical products
 - Allows for the possibility to include a comparison group in the ITS

Proposal Details Can be Found Here

PROTOCOL FOR THE ASSESSMENT OF FDA REGULATORY POLICIES FOR LONG ACTING BETA₂ AGONISTS

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Thank You