Initial Planning
analyze EMR functional capabilities for capturing data

Design
determine data elements (include joint exam, patient & provider assessment)
deploy benchmark standard (source: Division of Rheumatology, Cincinnati Children’s)

Development
develop flowsheet construct in EMR
develop source to target data flow with ETL software functions (Extract, Transform, Load)
E - construct queries to extract data from data source (EMR)
T - e.g., de-identify data, transform joint data (T,S,L) into joint counts in target
   (UDM – User Defined Module, in Xenobase tables)
L - load data into target (Xenobase tables)

Test
dataflow: using small patient group, review and edit appearance, confirm functions
data arrival: review results of load to Xenobase, correct errors
data quality: confirm data match between EMR and target using identified data

Implementation
orient division physicians to use of EMR data flow tables in EMR
analyze data (some re-identified) in Xenobase and other applications

Operations and Maintenance
conduct periodic data quality checks between source and target
perform incremental data upload updates to target