

A GLOBALLY APPLICABLE DATA-DRIVEN SYSTEMS APPROACH TO COVID-19

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FRANCISCO ROS, PhD

COMPREHENSIVE DATA FOR A MULTILAYARED PROBLEM

- **Critical groups for COVID spread infections:**

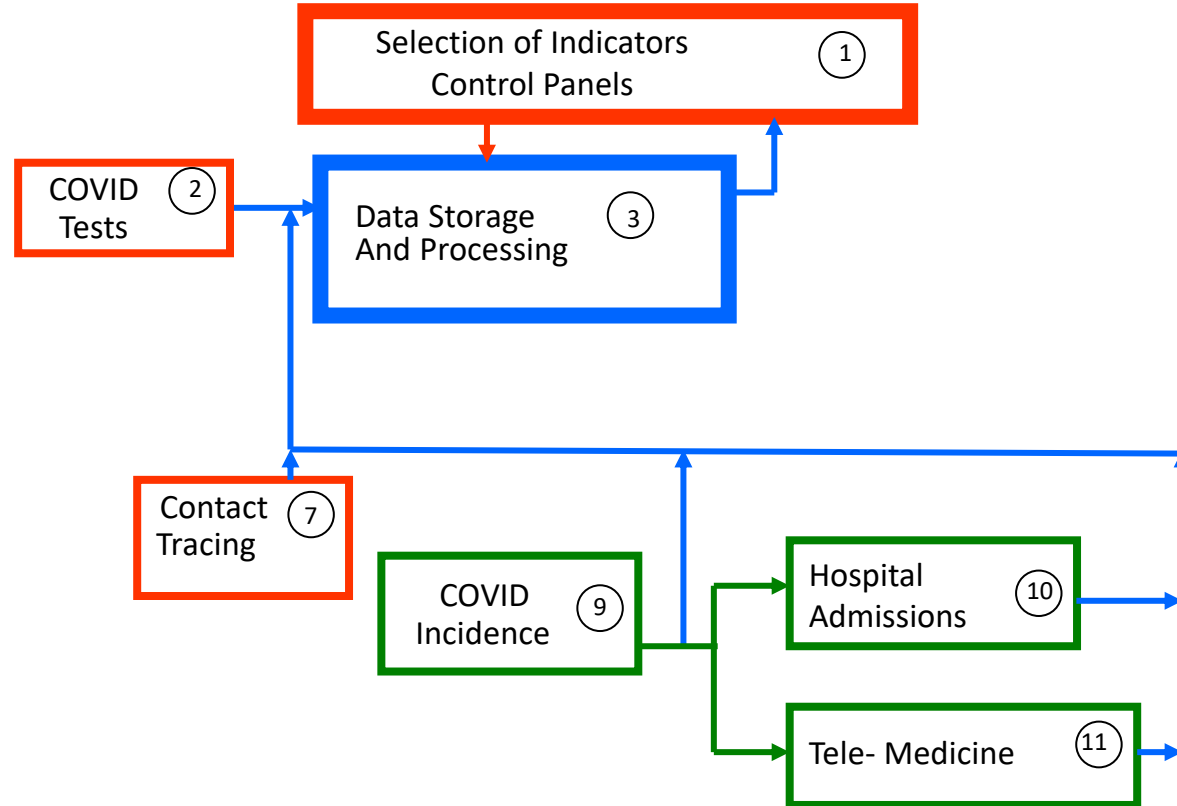
- elderly people (nursing homes),
- chronic disease patients
- health professionals
- temporary workers
- socially fragile communities

Have there been good data to rightfully-technically deal with these and other vulnerable groups?

- **Was lack of good and comprehensive data favoring negative preeminence of diverse and partial **cognitive bias** decisions in the interpretation of disease signs generated by an otherwise multilayered pandemic?**

Have there been managing a Digital Era pandemic with Analog Era data and handcraft procedures?

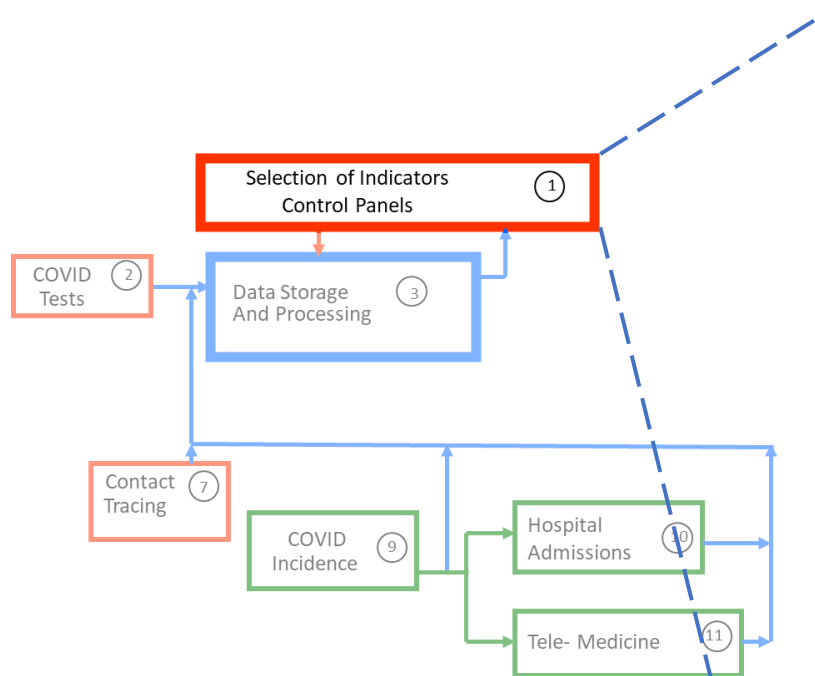
A SYSTEMS APPROACH TO DATA MANAGEMENT FOR COVID-19



In blue: flows relative to data

In red: flows relative to decisions, instructions and recommendations

INDICATORS (Examples) - Both historical and future evolution



• Clinic related

- Number of cases by age group requiring hospitalization/ICU
- Rate of new cases among critical groups
- Closed cases by resolution-cure or decease, respectively

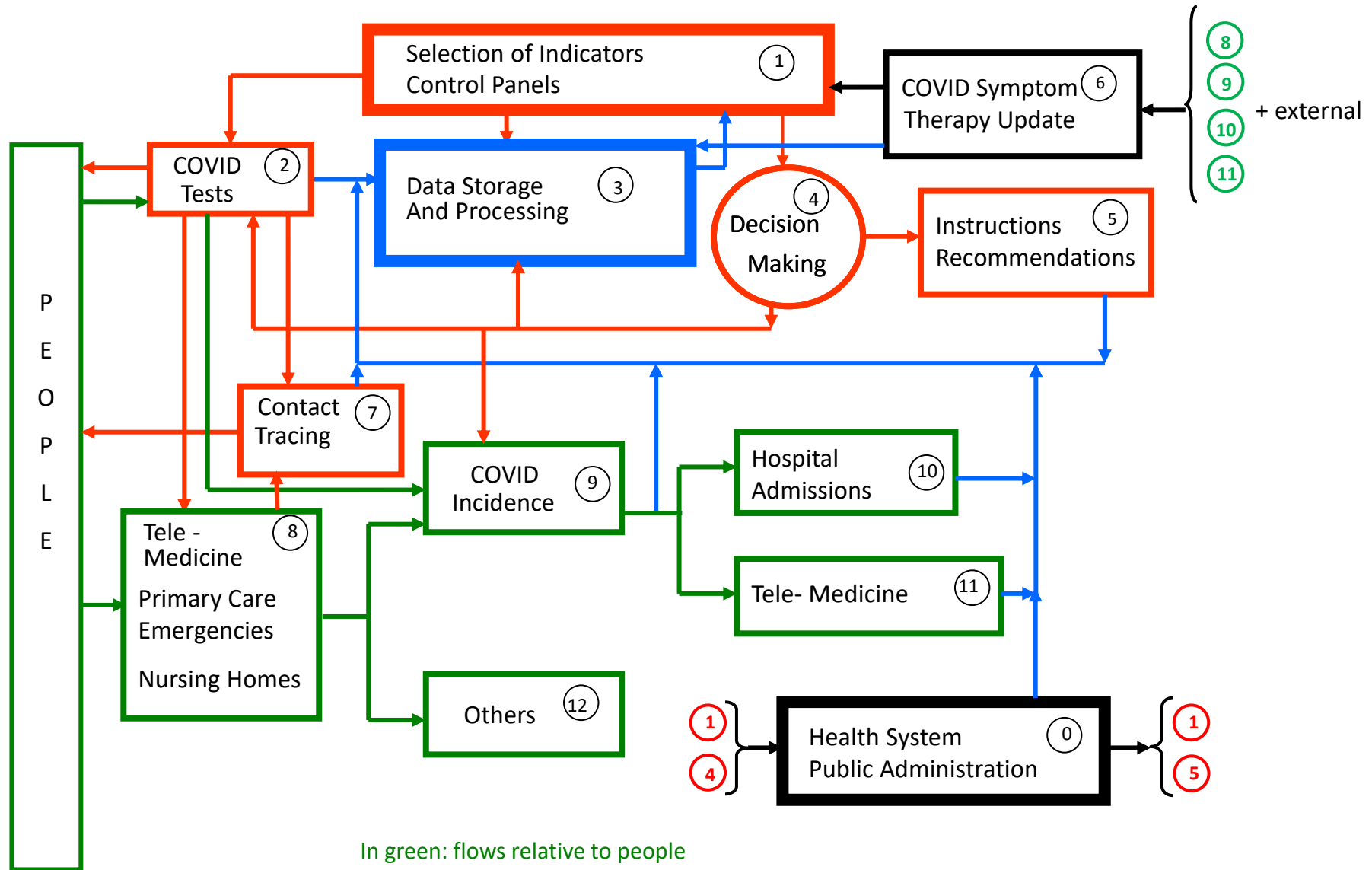
• Territory related

- Origin of cases to adjust the need for mobility control and contact tracing
- Positive test individuals complying with isolation measures by location, age and sex
- R0 (basic reproductive number) by territory

• Health System related

- Cases by age group the health system can absorb without underscoring “normal” demand
- Average time from onset of symptoms to hospitalization and ICU by age and sex
- Deceases from wards, ICUs, or outside hospitals (nursing homes, homes, other), respectively

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Boxes in the Systems Approach diagram should have input that is:

- **Accurate and meaningful**
- **Consistently defined**
- **Represented in a standard data format**

Johns Hopkins Coronavirus Resource Center on why there are inconsistencies among COVID-19 testing data: “This website relies upon publicly **available data from multiple sources that are not always consistent** in how and when they are released and updated.”

New York Times (13 July 2020)

- *“Before public health officials can manage the pandemic, **they must deal with a broken data system that sends incomplete results in formats they can’t easily use.....**Health departments track the virus’s spread with a distinctly American patchwork: a reporting system in which some test results arrive via smooth data feeds but others come by phone, email, physical mail or fax... These reports often come in duplicate, go to the wrong health department, or are missing crucial information...”*

Data Standards are Essential to a Successful Systems Approach

- **Global standards now exist** for the collection of data from clinical research on new and existing therapies and for vaccines to fight COVID-19.
- Global standards also exist for tracking adverse events (CDISC and Sentinel) and registering new research studies into ct.gov, EudraCT, WHO's International Clinical Trial Registration Platform.
- Common data models for outcomes and observational research exist; **however**, they could be better aligned with each other and with research data standards
- **Areas of opportunity for developing global consensus-based standards** to support a complete systems approach for COVID-19 are:
 - Reporting test results/laboratory results
 - Reporting data from EHRs for public health
 - Contact tracing and mobility
- **Standards are most valuable when widely adopted and consistently implemented.**

PANDEMIC MANAGEMENT SHOULD REQUIRE
SYSTEMS STRUCTURED- ADVANCED PROCESSED-STANDARDIZED-GLOBAL DATA
INVOLVING PUBLIC AND PRIVATE ENTITIES



THANKS