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The Impact of Electronic Health Record Downtime on Hospital Operations

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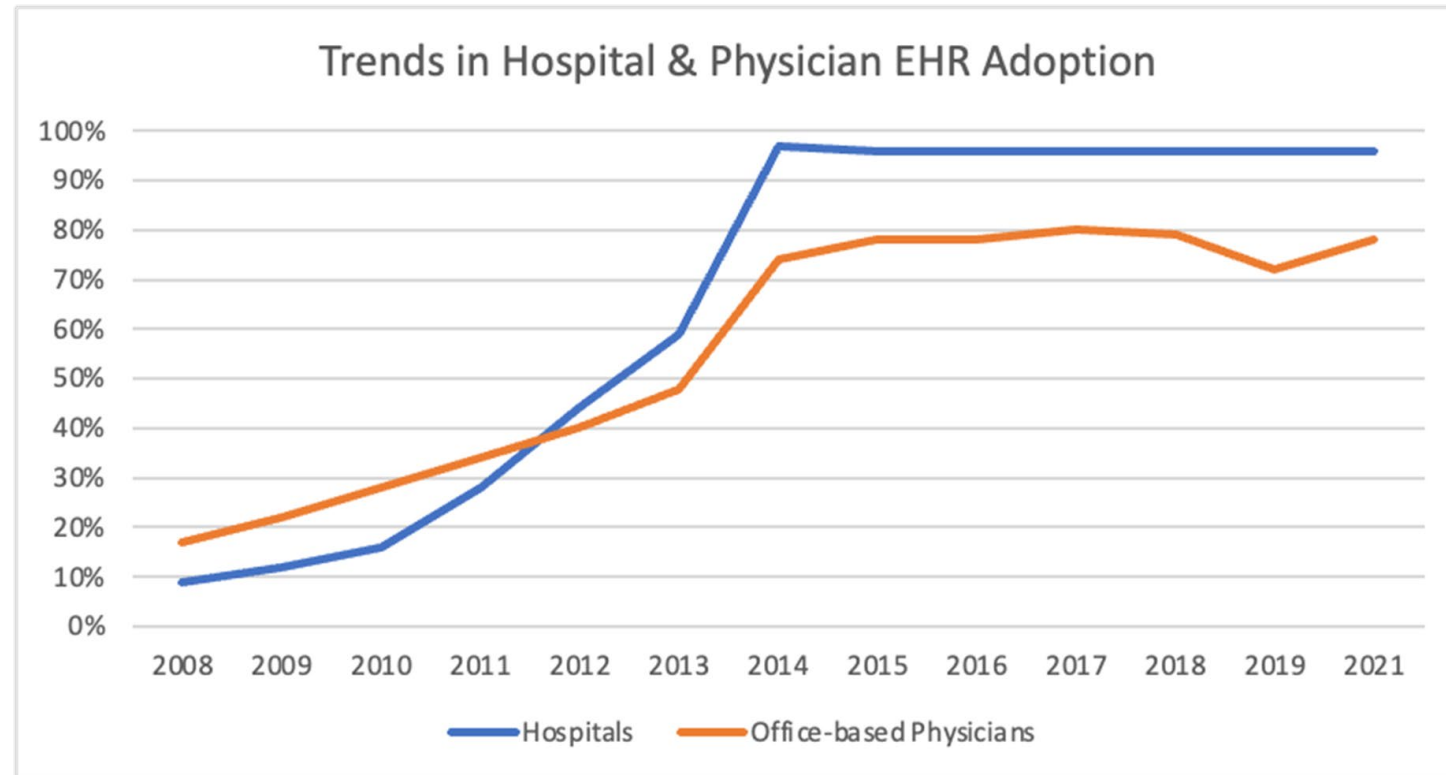
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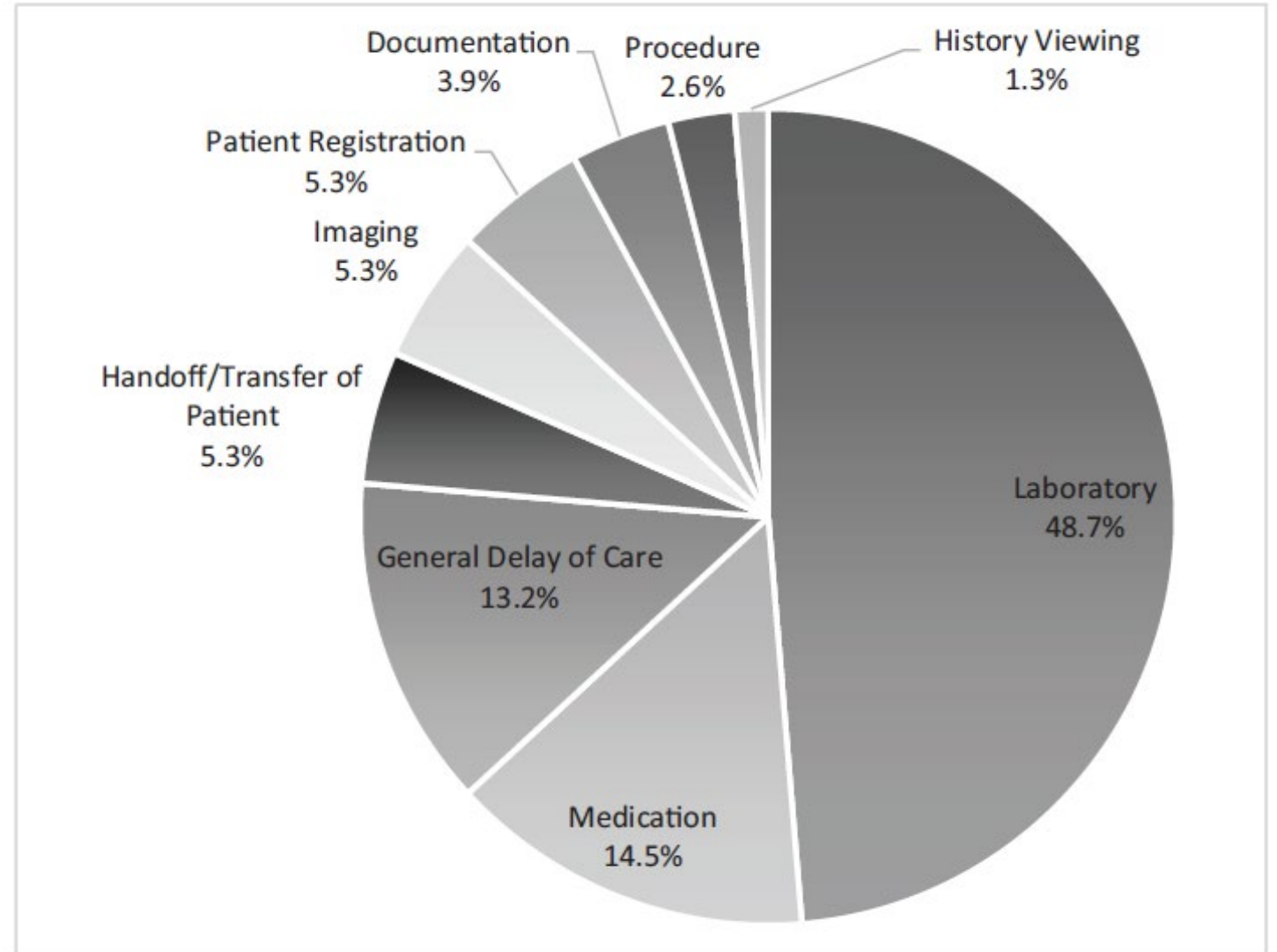
EHRs are Instrumental for Care Delivery

- Ubiquitous use of electronic health records across healthcare facilities
 - Medication/lab/imaging ordering
 - Documentation
 - Patient history
 - Communication:
 - Radiology
 - Lab
 - Pharmacy
 - Food services
- EHR downtime:
 - Planned
 - Unplanned
 - Power failures
 - Cyberattacks
 - Hardware/software failures



Impact on Patient Safety

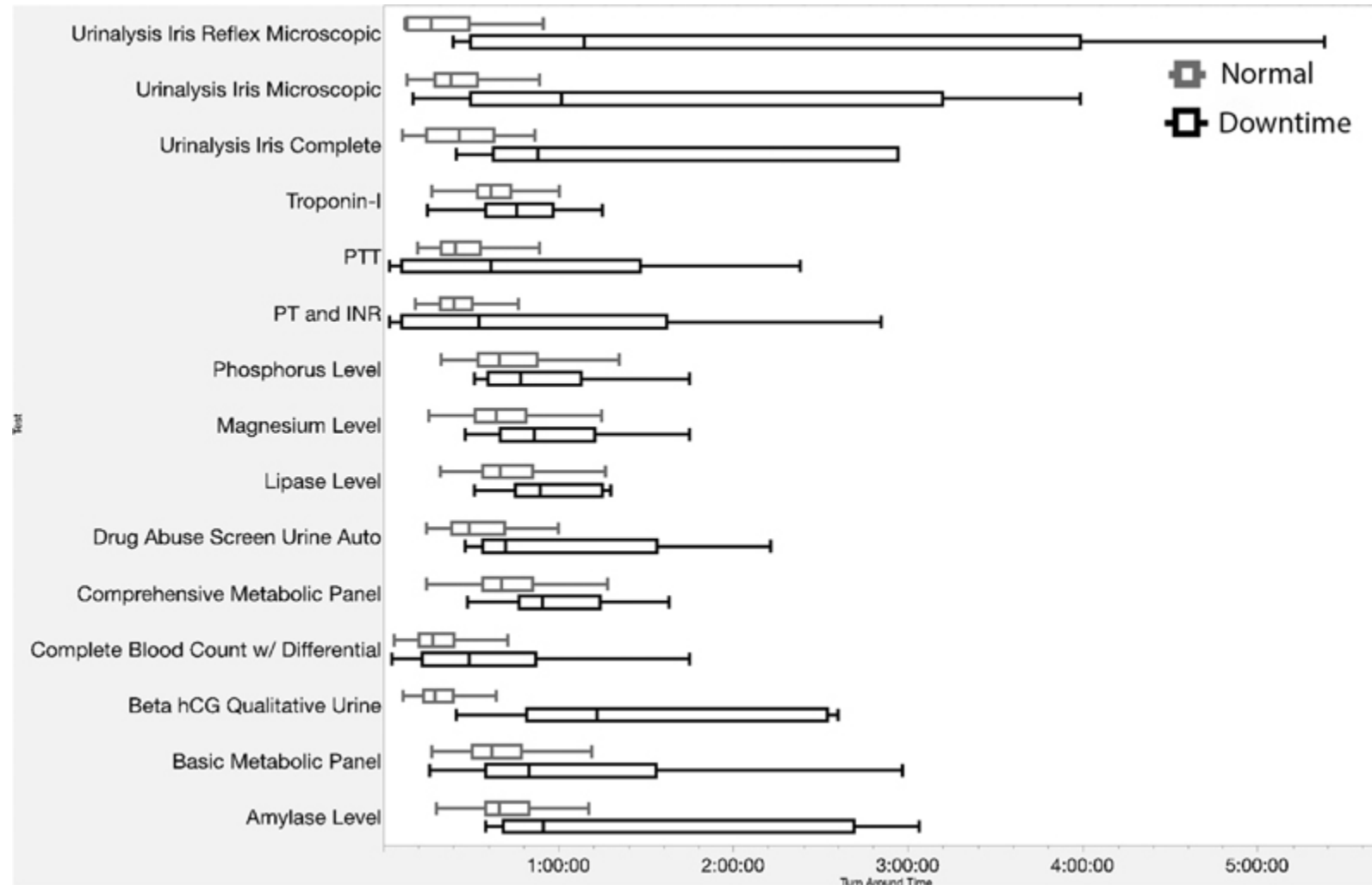
- Analysis of 79 downtime related patient safety event reports
- Manually coded by expert team to identify area of impact and specific safety issues



Care Process	Subcategory	Definition	Frequency of Occurrence
Laboratory	Patient Identification	Improper continuity of patient identification from collection to testing	9
	Lab Ordering	Complications in order placement and receipt	2
	Specimen Labeling and Tracking	Specimen misplaced or mislabeled	11
	Results Reporting	Transmission of results from laboratory to clinician	8
	General	General descriptions of downtime issues with lab (eg, lab results slowed due to downtime)	7
Imaging	Image Ordering	Complications in order placement and receipt	1
	Image Transfer	Relaying image to necessary staff for interpretation	1
	Results Reporting	Transmission of imaging study results to clinician	2
Medication	Issue Entering Order	Placement of medication order disrupted	3
	Administration	Includes: delay, wrong dose, wrong medication, and medication tracking	8
Patient Registration		Issue caused patient registration to be disrupted or incomplete	4
Handoff/Transfer of Patient		Issue transferring or handing off patient at shift change	4
Documentation		Unable to document patient information	3
History Viewing		Unable to view past patient information	1
Delay of Procedure		Delay in medical procedure due to downtime	2
General Delay of Care (No specific process mentioned)		Incident reports describing overall difficulties with downtime operations without specific details (eg, downtime caused delays in patient care)	10

Impact on Lab Operations

- Compared IT timestamped data to paper records during downtime
- Measured turn around time for a variety of lab tests
- Avg. of 20-minute delay per test (range 8-36 min)



Challenges to be Addressed

- Very few studies of downtime operations:
 - Uncomfortable topic
 - Difficult to collect data
 - “Traditional” digital footprints are not available
- Downtime procedures are underdeveloped
 - Incentivize more robust downtime procedures
- Deskilling from IT/automations poses challenges
 - Residents and dose calculations



Thank you

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