: What technologies are central to digital transformation of healthcare?

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A diverse array of technologies enable and support digital transformation of healthcare. Fitting technologies into a comprehensive and useful patient-centered care system is challenging. Managers and technologists must identify novel uses of digital technologies to solve traditional healthcare problems. Technologies can alter health delivery processes, the culture of healthcare, and patient experiences. This article defines, discusses, and reviews 13 major information technology centered healthcare application categories. The categories are:

1) Clinical Decision Support Systems (CDSS) which refers to "any program designed to help healthcare professionals make clinical decisions" (Musen et al., 2001, p. 575). CDSS include "any electronic system designed to aid directly in clinical decision making, in which characteristics of individual patients are used to generate patient-specific assessments or recommendations that are then presented to clinicians for consideration" (Lobach et al., 2012).

2) Computerised Physician Order Entry (CPOE) describes "a process that allows a physician to enter medical orders directly and to manage the results of these orders" (Aarts et al., 2007, p. S4). CPOE is "a computer application healthcare providers use to enter orders for medications, diagnostic tests, and ancillary services into a computer system. The EMR refers to a computerized record of patient data" (Dykstra et al., 2009, p.158)

3) Critical Test Result Management (CTRM), also known as Critical Test Results Reporting, and Closed-Loop Reporting, "is the software that handles a medical test result that has returned as critical to a patient's health. It prevents the critical result from being lost in communication failures, improves patient safety, and documents the delivery of the results." (MedicExchange, 2015)

4) Electronic Health Record (EHR) is "digitally stored healthcare information about an individual's lifetime with the purpose of supporting continuity of care, education and research, and ensuring confidentiality at all times" (Lakovidis, 1998, p.106). In general, an EHR is "a paperless form of a patient's medical record where HCPs [Healthcare providers] can enter and retrieve information utilizing a computerized system rather than writing in a paper chart" (Wallace et al., 2012, p.34)

5) Electronic Medical Billing (EMB) allows interaction between payers/insurance companies and

healthcare providers/organizations, managing payment for healthcare services (MedicExchange, 2015)

6) Electronic Medical Record (EMR) is "an electronic health record that shares data only within its organization" (Bryne et al., 2010, p.637). It is "the health record used to gather, store, retrieve, and analyze medical information (Richards et al., 2012, p.121)". An EMR is synonymous with EHR (Duncan, 2015, p.12).

7) ePrescription (eRx) refers to "entering a prescription for a medication into an automated data entry system, and thereby generating a prescription electronically, instead of handwriting the prescription on paper"(Kilbridge, 2001, p.9). sRx refers to the entire process of prescribing a medication in electronic format whereby the clinician prescribes medications which are then sent electronically to a pharmacy, and feedback comes back to the clinician when the patient collects the prescription (Cusack, 2008).

8) Medical and Patient Scheduling Software (MPSS) provides intelligent scheduling system applications for a healthcare practice, and lets the care provider manage/schedule patient appointments through electronic preference cards" (MedicExchange, 2015).

9) Picture Archiving and Communication System (PACS) refers to medical imaging technology which provides economical storage, rapid access to images from multiple modalities and simultaneous access to the same image at the one time (Choplin, 1992). PACS is "a computerised means of replacing the roles of conventional radiological film: images are acquired, stored, transmitted, and displayed digitally" (Strickland, 2000, p.82).

10) Patient Portal (PP) is an internet-based interactive website for patients to communicate with their healthcare provider and with varied functions that gives them access to portions of their medical record and other services (Sorensen et al., 2009).

11) Patient Health Records (PHR) are "provider-tethered applications that allow patients to access health information that is documented and managed by a health care institution" (Bourgeois et al., 2009, p.65). The PHR "is owned and controlled by the individual patient (or proxy), and may have information that is not contained in a medical record" (Emont, 2011, p.2).

12) Real Time Location System (RTLS) uses real time tracking to "enhance oversight on an array of hospital owned equipment/items (MedicExchange, 2015).

13) Telehealth/Telemedicine (TH/TM) is the "delivery of health care and sharing of medical knowledge over a distance using telecommunication system" (Thrall and Boland, 1998, p.145). Telehealth is "a service where clients' vital signs are monitored remotely, at pre-set time intervals, using technology in their home" (Cartwright et al., 2011, p.6)

Finding the platform, the data storage, and the hardware of computers, sensors and diagnostic and treatment devises to integrate with these and other applications in a seamless manner is challenging. Digital transformation means re-imagining healthcare.

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