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| 7     | Medical record fully electronic and EMR able to contribute to EHR. Clinical information can be readily shared via electronic transactions or exchange of electronic records with all entities within a regional health network (i.e. other hospitals, ambulatory clinics, sub-acute environments, employers, payers and patients). | Interoperability with other settings  
- The ophthalmologist/eye clinic is able to exchange medical record information and images with eye care providers, other medical providers, and other entities within a secure regional health network  
- Ophthalmologists can obtain remote access to medical record information and images within a secure regional health network  
- Different care systems use the same controlled medical terminology so that the content of medical records can be understood (semantic interoperability) | Security for patient information confidentiality, data integrity and user accountability supported via IHE Audit Trail and Node Authentication (ATNA) Integration profile  
- Cross-enterprise document sharing implemented via IHE Cross Enterprise Document Sharing (XDS) (ophthalmology extensions still need development)  
- Exchange of DICOM spectacle prescription reports | Comprehensive IT security plan in use for data sharing  
RFPs request vendor MDS² statements  
Comprehensive IT quality system established |
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| 6     | • Full physician documentation / charting (structured templates) are implemented.  
       • A full complement of radiology PACS systems is implemented (i.e. all images, both digital and film-based, are available to physicians via an intranet or other secure network).  
       • Fully electronic eye clinic  
       • The eye clinic/office is fully electronic and the ophthalmologist uses structured forms (templates) to enter examinations and observations, based on a terminology that is agreed upon and understood in the clinic/office.  
       • The ophthalmologist can obtain image and date results from all diagnostic devices via an intranet or secure network that connects all the satellite office.  
       • Ophthalmology PACS / image management functions are fully implemented.  
       • In case of hospital or multi-specialty environment, the eye clinic is able to exchange medical record information with other departments. | • Full compliance with IHE Eye Care framework  
• Single sign-on for software applications via IHE Enterprise User Authentication (EUA) profile  
• Patient selection in software applications synchronized via IHE Patient Synchronized Application (PSA) profile | • WAN effectively connects all practice locations  
• IT risk management plans in use for acquisition processes  
• RFPs systematically reference IHE Eye Care technical framework, request vendor IHE Eye Care integration statements, DICOM conformance statements, and Manufacturer Disclosure Statement for Medical Device Security (MDS²) statements  
• IT staff available onsite to ensure target up-time, has tools and working knowledge of HL7 and DICOM transactions  
• Clinical Context Object Workgroup (CCOW) context manager software deployed to enable disparate applications to synchronize in real-time |
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| 5     | • Closed loop medication administration fully implemented. eMAR and bar coding or other auto-identification technology such as radio frequency identification (RFID) are implemented and integrated with CPOE and pharmacy to maximize point-of-care patient safety processes for medication administration. | Electronic patient safety processes  
• The ophthalmologist/eye clinic institutes electronic safeguards or protocols for patient safety, e.g., automatic drug interactions, contraindications, pre-op and intra-operative site verification forms  
• The electronic order process automatically verifies the patient identification prior to the procedure being performed and matches images correctly with the patient record. | • All IHE Eye Care use cases for patient information reconciliation supported  
• Verification reports stored via IHE Eye Care displayable reports profile | • Work instructions for patient identification verification and patient information reconciliation documented and followed  
• IT risk management plans in use for operations processes |
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| 4     | • Computerized practitioner/physician order entry (CPOE) for use by any clinician added to CDR environment  
  • CDSS clinical protocols implemented | **Computerized order entry**  
  • The ophthalmologist electronically enters prescription orders.  
  • The ophthalmologist electronically enters orders for diagnostic tests/procedures, including lab tests and surgical procedures. Most or all imaging devices and instruments are integrated into the imaging system (via DICOM Modality Worklist (MWL)). | • EMR, PACS and modalities interfaced via IHE Eye Care CPOE transactions (RAD-2, RAD-3, RAD-4, RAD-13, EYECARE-1 – HL7 ORM and DICOM MWL) | • IT staff trained in IHE Eye Care, DICOM and HL7  
  • IT staff trained in cybersecurity, electronic signatures and HIPAA requirements  
  • Process quality and efficiency metrics defined and in use  
  • Joint clinical / IT team in place to define / refine use of coding schemes |
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| 3     | Clinical documentation installed (vital signs, flow sheets, nursing notes, care plan charting and/or the electronic medication administration record (eMAR)).  
CDSS error checking with order entry (drug/drug, drug/food, drug/lab, conflict checking normally found in the pharmacy)  
Some level of medical image access from picture archive and communication systems (PACS) is available for access by physicians via the organization’s intranet or other secure networks | Structured clinical documentation and medical images  
- The ophthalmologist electronically enters clinical notes and interpretation reports and uses some structured forms/templates to enter medication information and/or refractive data.  
- The ophthalmologist can access some digital images via an intranet or other secure local area network. Ophthalmology PACS / image management functions partially implemented. | Patient demographics transferred from PMS to EMR via IHE RAD-1 and RAD-12 (HL7 ADT) transactions  
Modalities store images to PACS via IHE EYECARE-2 (Digital Imaging and Communications in Medicine (DICOM) standards storage) transaction. | IT staff aware of IHE Eye Care, DICOM and Health Level 7 (HL7) standards  
IT staff familiar with cyber security issues and techniques; aware of Health Information Portability and Accountability Act (HIPAA) requirements  
IT staff involved throughout acquisition process  
RFP’s impose technical constraints on interfaces and image storage  
Image archival solution deployed including disaster recovery |
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| 2     | Ancillary clinical systems feed data to clinical data repository (CDR) that provides physician access for retrieving and reviewing results  
       | Clinical data repository  
       |   - The ophthalmologist has an electronic system for accessing and storing medical record information. This may be a document management system for scanned chart information or a transcription system for clinical reports. Images and data reports may also be scanned into the document management system.  
       | In purchasing decisions for new equipment, look for devices that have Integrating the Health care Enterprise (IHE) Eye Care integration statements  
       | Ongoing Information Technology (IT) services scheduled to ensure data integrity; same IT service provider used consistently.  
       | Backup strategy implemented and verified |
| 1     | All ancillary clinical systems (laboratory, pharmacy and radiology) installed  
       | Ancillary systems  
       |   - The ophthalmologist has an optical ancillary system (if ophthalmologist/eye clinic has an optical shop)  
       | Start investigating whether devices used in the optical system have IHE Eye Care integration statements  
       | IT services called in as needed for optical ancillary system |
| 0     | Some clinical automation may exist  
       | Limited clinical automation  
       |   - The ophthalmologist has a PMS (practice management system) that is used for appointment scheduling, billing etc.  
       | Acquire a PMS that has an IHE Eye Care integration statement  
       | IT services called in as needed for projects |