Integrating the Healthcare Enterprise

IHE Eye Care (EYECARE) Technical Framework Supplement

Eye Care Appointment Scheduling

(ECAS)

Public Comment

Date: April 1 2010

Author: Doug Johnson, Rick Butler

Email: flum@aao.org

Foreword

This is a supplement to the IHE Eye Care Technical Framework, V3.7. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

 This supplement is submitted for Public Comment between April 1, 2010 and April 30, 2010. Comments are invited and may be submitted to the IHE forums at **http://forums.rsna.org**. In order to be considered in development of the Trial Implementation version of the supplement comments must be received by April 30, 2010. Please use the Public Comment Template provided in the thread and submit comments by posting the completed template as an attachment to a Reply or New Thread.

This supplement describes changes to the existing technical framework documents and where indicated amends text by addition (**bold underline**) or removal (~~**bold strikethrough**~~), as well as addition of large new sections introduced by editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume:

Replace Section X.X by the following:

General information about IHE can be found at: www.ihe.net

Information about the IHE Eye Care may be found at: http://www.ihe.net/Domains/index.cfm

Information about the structure of IHE Technical Frameworks and Supplements can be found at: http://www.ihe.net/About/process.cfm and http://www.ihe.net/profiles/index.cfm

The current version of the IHE Technical Framework can be found at: http://www.ihe.net/Technical_Framework/index.cfm

CONTENTS

Introduction

This supplement, IHE EYECARE Technical Framework Supplement - Eye Care Appointment Scheduling, adds a new profile to the existing IHE Eye Care Technical Framework and two new actors.

- The Eye Care Appointment Scheduling Profile (ECAS) describes mechanisms to allow a healthcare provider to request an appointment and to request and receive appointment information within an eye care clinic.

- The Appointment Scheduler is a new actor which is responsible for receiving requests for appointments and appointment information and returning the information to the requester.

- The Appointment Requester is a new actor which gives the user the ability to request an appointment and to request information about appointments that have been scheduled. It is also responsible to maintain the current status of any appointment request which it originated.

Profile Abstract

The Eye Care Appointment Scheduling Profile specifies the creation of a scheduling information exchange between a master appointment schedule and a working healthcare provider recognizing that often the master schedule and the personnel who operate it may not be readily available at the provider's location. It also defines the communication between patient registration systems and the appointment scheduling system about patient demographics. The Eye Care Appointment Request contains all of the required data needed to request a patient appointment. The Eye Care Appointment Response has all of the required data to confirm that an appointment with the desired criteria has been created or that the appointment could not be set as requested. The goals of including these transactions in the IHE Technical Framework include standardizing the means of requesting patient appointments, minimizing the time needed for these requests, maintaining both the flexibility and the specificity needed for appointment scheduling in a clinical environment while increasing the accuracy of both the request and the response, and giving the healthcare provider a means to determine if the scheduling request has or has not been filled. Additionally the Scheduling Profile allows the healthcare provider to view schedules based on requested criteria.

Open Issues and Questions

None

Closed Issues and Questions

Volume 1 – Integration Profiles

1.7 History of Annual Changes

Add the following bullet to the end of the bullet list in section 1.7

* A supplement has been drafted in the 2010 development cycle of the Eye Care Domain. It will be the basis for the testing at IHE Connectathons beginning in 2010. The current IHE Technical Framework adds the following primary features to those of previous years: Added the Eye Care Appointment Scheduling Profile which allows the creation of a scheduling information exchange between a master appointment schedule and a working healthcare provider recognizing that often the master schedule and the personnel who operate it may not be readily available at the provider's location. It also defines the communication between patient registration systems and the appointment scheduling system about patient demographics.

2.1 Dependencies among Integration Profiles

Add the following to Figure 2-1

Eye Care Appointment Scheduling

Manage and exchange appointment information
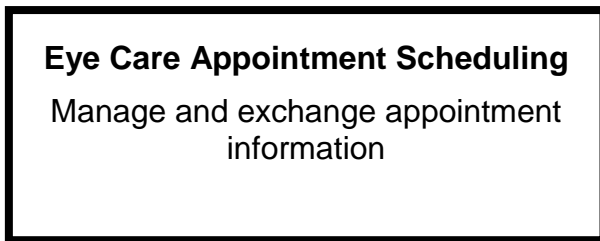
Add the following to Table 2-1

Eye Care Appointment Scheduling	None	None	None

Add the following section to section 2.2

2.2.5 Eye Care Appointment Scheduling

The Eye Care Appointment Scheduling Profile specifies the creation of a scheduling information exchange between a master appointment schedule and a working healthcare provider recognizing that often the master schedule and the personnel who operate it may not be readily available at the provider's location. It also defines the communication between patient registration systems and the appointment scheduling system about patient demographics. The Eye Care Appointment Request contains all of the required data needed to request a patient appointment. The Eye Care Appointment

<Rev. 1.0 - 2010-04-01>
Copyright © 2010: IHE International, Inc.

Response has all of the required data to confirm that an appointment with the desired criteria has been created or that the appointment could not be set as requested. The goals of including these transactions in the IHE Technical Framework include standardizing the means of requesting patient appointments, minimizing the time needed for these requests, maintaining both the flexibility and the specificity needed for appointment scheduling in a clinical environment while increasing the accuracy of both the request and the response, and giving the healthcare provider a means to determine if the scheduling request has or has not been filled. Additionally the Scheduling Profile allows the healthcare provider to view schedules based on requested criteria.

Add Appointment Scheduler Actor and Appointment Requester Actor to Actor Section 2.3 Actor Descriptions

2.3 Actor Descriptions

ADT/Patient Registration - A system responsible for adding and/or updating patient demographic and encounter information (Admission/Discharge/Transfer). In particular, it registers a new patient with the Order Placer and Department System. Some possible eye care examples include a Practice Management System (PMS) or a Hospital Information System (HIS).

Appointment Scheduler - A system that handles requests for appointments and requests for appointment information. The system may either maintain the schedule or act as the interface to an existing schedule, but is responsible for providing schedule information including both appointments requested by the Appointment Requester Actor and those that were not.

Appointment Requester - A system that sends requests for appointments and/or schedules and displays the results of those requests.

Charge Processor - Receives the posted charges and serves as a component of the financial system (for instance a PMS or billing system).

Add Appointment Scheduling Profile and Actors to Table 2.3-1

Table 2.3-1. Integration Profile Actors

Actor / Integration Profile	EYE CARE Workflow	Eye Care Charge Posting	Eye Care Evidence Document	Eye Care Displayable Report	**Eye Care Appointment Scheduling**
……	…	…	…	….	
ADT Patient Registration	X	X			**X**
Appointment Requester					**X**
Appointment Scheduler					**X**
…..	…..				

<Rev. 1.0 - 2010-04-01>

Add Appointment Notification, Receive and Request New Appointment, Request Schedule to various transactions in section 2.4 Transaction Descriptions

2.4 Transaction Descriptions

Retrieve Displayable Reports – A Report Reader requests and retrieves a diagnostic report from the Report Repository. [EYECARE-9]

Appointment Request - The Appointment Requester requests a patient appointment with varying specificity of detail as to date range and purpose of the visit. The Appointment Scheduler receives and acknowledges the request, then either fills the request, returning the appointment, or denies the request. [EYECARE-12]

Appointment Notification - The Appointment Scheduler sends information to the Appointment Requester for any change to the schedule, including appointments added, updated or cancelled. [EYECARE-13]

Schedule Query - The Appointment Requester queries the Appointment Scheduler for a schedule based on specified parameters. The Appointment Scheduler returns the result of the query and the Appointment Requester displays the returned schedule. [EYECARE-14]

Add Appointment Scheduling Profile and Transactions to Table 2.4-1

Table 2.4-1. Integration Profile Transactions

Integration Profile / Transaction	EYE CARE Workflow	Eye Care Charge Posting	Eye Care Evidence Document	Eye Care Displayable Report	**Eye Care Appointment Scheduling**
……	…	…	…	….	
Appointment Notification					**X**
Appointment Request					**X**
Schedule Query					**X**

Add Section 7

7 Eye Care Appointment Scheduling (ECAS)

The Eye Care Appointment Scheduling Profile specifies the creation of a scheduling information exchange between a master appointment schedule and a working healthcare provider recognizing that often the master schedule and the personnel who operate it may not be readily available at the provider's location. It also defines the communication between patient registration systems and the appointment scheduling system about patient demographics. The Eye Care Appointment

Request contains all of the required data needed to request a patient appointment. The Eye Care Appointment Response has all of the required data to confirm that an appointment with the desired criteria has been created or that the appointment could not be set as requested. The goals of including these transactions in the IHE Technical Framework include standardizing the means of requesting patient appointments, minimizing the time needed for these requests, maintaining both the flexibility and the specificity needed for appointment scheduling in a clinical environment while increasing the accuracy of both the request and the response, and giving the healthcare provider a means to determine if the scheduling request has or has not been filled. Additionally the Scheduling Profile allows the healthcare provider to view schedules based on requested criteria.

7.1 Actors/ Transactions

Figure 7.1-1 shows the actors directly involved in the Eye Care Appointment Scheduling Integration Profile and the relevant transactions between them.

<Rev. 1.0 - 2010-04-01>
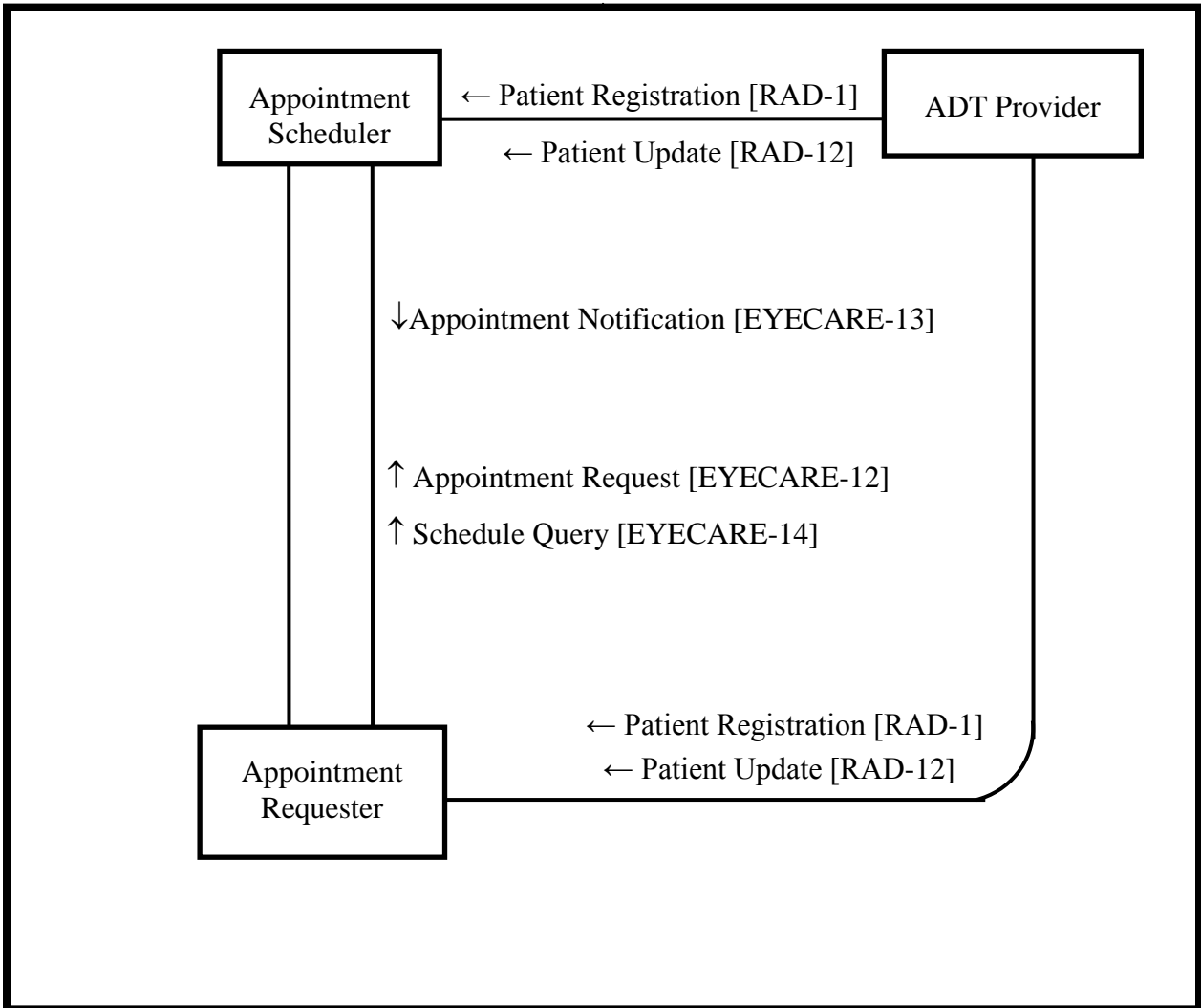
Figure 7.1-1. Eye Care Appointment Scheduling Actor Diagram

Table 7.1-1 lists the transactions for each actor directly involved in the Eye Care Appointment Scheduling Profile. In order to claim support of this Integration Profile, an implementation must perform the required transactions (labeled "R").

Table 7.1-1. Eye Care Appointment Scheduling Integration Profile - Actors and Transactions

Actors	Transactions	Optionality	Section in Vol. 2
ADT Patient Registration	Patient Registration	R	RAD TF- 2:4.1

<Rev. 1.0 - 2010-04-01>

Actors	Transactions	Optionality	Section in Vol. 2
	Patient Update	R	RAD TF- 2:4.12
Appointment Requester	Patient Registration	R	RAD TF- 2:4.1
	Patient Update	R	RAD TF- 2:4.12
	Appointment Request	R	EYECARE TF- 2:4.12
	Schedule Query	R	EYECARE TF- 2:4.14
	Appointment Notification	R	EYECARE TF- 2:4.13
Appointment Scheduler	Patient Registration	R	RAD TF- 2:4.1
	Patient Update	R	RAD TF- 2:4.12
	Appointment Request	R	EYECARE TF- 2 :4.12
	Schedule Query	R	EYECARE TF- 2 :4.14
	Appointment Notification	R	EYECARE TF- 2 :4.13

7.2 Eye Care Appointment Scheduling Integration Profile Options

Options that may be selected for this Integration Profile are listed in the table 7.2-1 along with the Actors to which they apply. Dependencies between options when applicable are specified in notes.

Table 7.2-1 Eye Care Appointment Scheduling - Actors and Options

Actor	Options
ADT Patient Registration	No options defined
Appointment Requester	No options defined
Appointment Scheduler	No options defined

7.3 Eye Care Appointment Scheduling

This section describes the specific use cases and process flows defined for the Eye Care Appointment Scheduling Profile. **Note:** The problem domain of appointment scheduling is broad and detailed with many variations and many solutions. Eye Care Appointment Scheduling addresses the specific problem of a provider making appointment requests to a scheduler. In many clinics this is done through notations in a chart, through phone calls or direct communication with a scheduling person and even through the use of sticky notes. Eye Care Appointment Scheduling does not currently presume to instruct a clinic or provider on how scheduling should be done. It does, however, provide the means to communicate with as much detail as needed the wishes of a provider in a clinical context so that an appropriate appointment can be made and provides for information to be sent back to the provider so that the provider can know, if he or she wants to know, how that appointment schedule request was filled.

Of particular importance in the context of Appointment Scheduling is that eye care differentiates between appointment requests and orders that result in a modality worklist in other parts of the IHE Technical Framework. While some providers may refer to the process of requesting that a patient return to the clinic on a specific date and time as an order, in working through this problem domain, eye care noted both confusion in discussion and difficulty in resolving the issues associated with IHE defined orders which result in a modality worklist and scheduling orders which result in an appointment. While it is possible to resolve the differences, that is outside the scope of this profile.

7.3.1 Patient Registered or Updated at ADT

The patient has been registered in an ADT/Patient Registration actor. The patient information is sent to both the Appointment Scheduler and Appointment Requester. If a patient's information is changed or updated, that information is sent to both the Appointment Scheduler and Appointment Requester. More detailed examples are available in the Eye Care Workflow Profile for transactions [RAD-1] and [RAD-12].
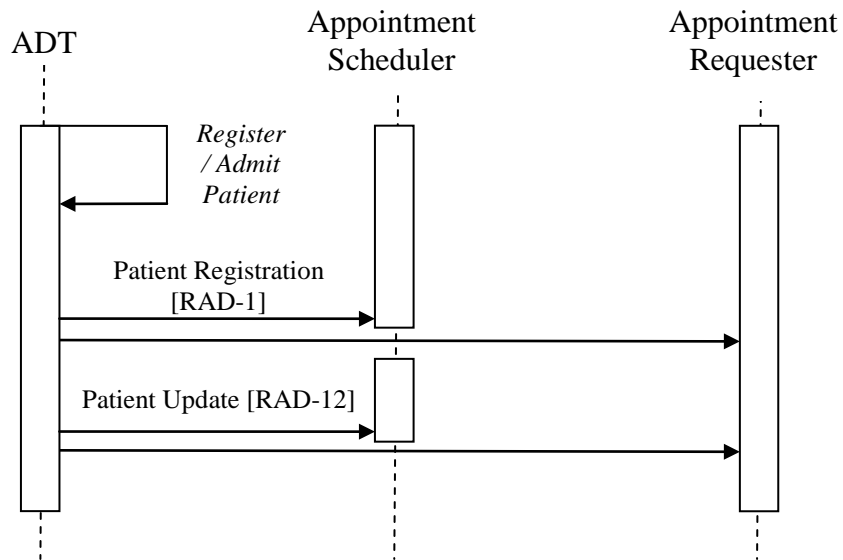

Figure 7.3-1. Basic Process Flow in Patient Registered or Updated at ADT

7.3.2 Request and Receive New Appointment

In this use case, the healthcare provider sends a request for a new appointment and receives a response with the assigned appointment meeting the request criteria, or a response denying the request. The request for an appointment, the disposition of that request and the capability of providing this information over the long term is the responsibility of the Appointment Requester.

Examples of the criteria for a new patient appointment could be specific date and time, for specific equipment, with a specific person, for a specific reason, or any combination. Alternately, the healthcare provider can make a more general request within a date range ("in two weeks", "a year from now") and/or for a more general reason (follow-up for glaucoma check). Below are some clinical scenarios:

- A healthcare provider notes that the patient's intraocular pressure is somewhat elevated and wants to measure it again next week. The healthcare provider requests an appointment be made for the patient to return sometime next week. The patient checks out at the front desk and sets and appointment for Tuesday of next week. A response with that appointment is sent to the healthcare provider.

- A healthcare provider wants a patient to have an OCT, but the machine is fully booked today. The patient says that they can come back next Wednesday. The healthcare provider requests an appointment for the patient to have an OCT on the following Wednesday because the healthcare provider only available in the office that day. There are no available OCT slots available on next Wednesday. A response is sent denying the request. The healthcare provider checks the calendar and sends in a new request for the patient to have an OCT at a time the service could be provided and the healthcare provider was in the office.

- A healthcare provider wants the patient to see a retinal specialist within the practice this week. The patient checks out with the front desk and states they will need to go home to check their calendar. No appointment is set and no response is sent to the healthcare provider.
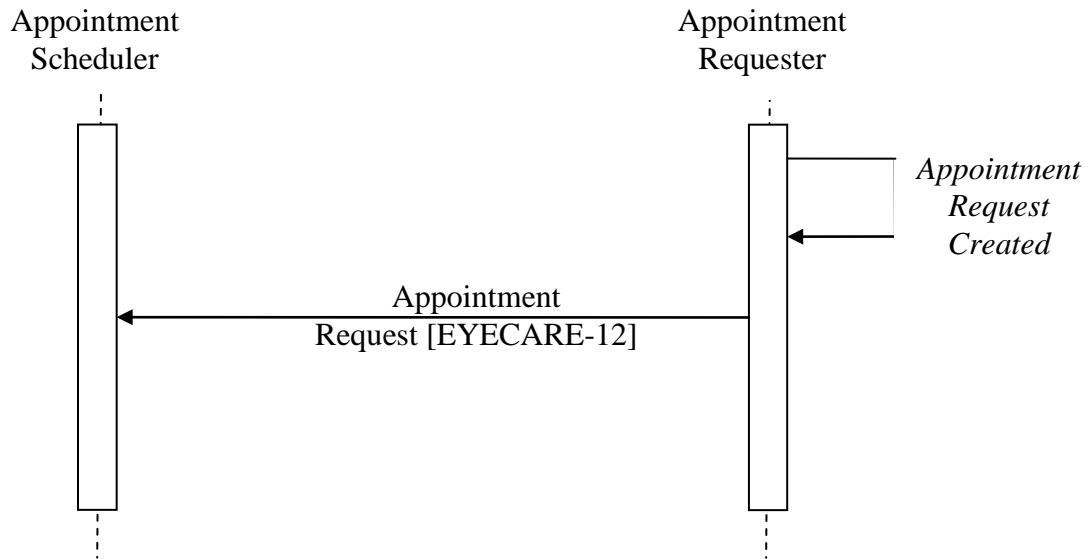
Figure 7.3-2 Basic Process Flow in Request Appointment

While the means of reporting is outside the scope of this use case, the healthcare provider will want the ability to know about the disposition of all of the requests, including the ability to know which requests have not yet received a response, and, as mentioned, it is the responsibility of the Appointment Requester to provide that means.

7.3.3 Request Schedule

A healthcare provider wishes to review the scheduled appointments for some entity, such as the facility, him/herself, another healthcare provider, a piece of equipment, etc. The healthcare provider requests a list of scheduled appointments based on criteria that match their interests, and the appointment scheduler returns that list. This capability enables a provider the ability to pull appointment information when needed, where needed.

In this use case, an authorized healthcare provider sends a request to the appointment scheduler which returns a list of all of the appointments that match the requested criteria. The list is displayed. Below are some example clinical scenarios.

- A healthcare provider is about to see a scheduled patient. He queries the appointment scheduler to obtain the list of patients on his schedule for that day. Upon reviewing the list the healthcare provider selects the appropriate patient's name from the list, and that patient's

<Rev. 1.0 - 2010-04-01>

medical record is displayed for review. Note the application to select and display the medical record are outside the scope of IHE.

- A healthcare provider is considering whether to attend a department meeting that has been called for 10 AM on Tuesday of next week and wants to know what appointments are scheduled.

- A healthcare provider wants a patient to have a medical procedure (such as a visual field) done today. The patient is willing to come back later this afternoon, but only if the patient "won't have to wait too long". The healthcare provider wants to know if the visual field machine is booked heavily for the afternoon.

- A healthcare provider wants a patient to return for follow-up for a procedure that was done today. The patient remembers that they have a future appointment but doesn't remember exactly when that appointment is. The healthcare provider wants to find out when the future appointment is planned to determine if it falls within the planned follow-up time.
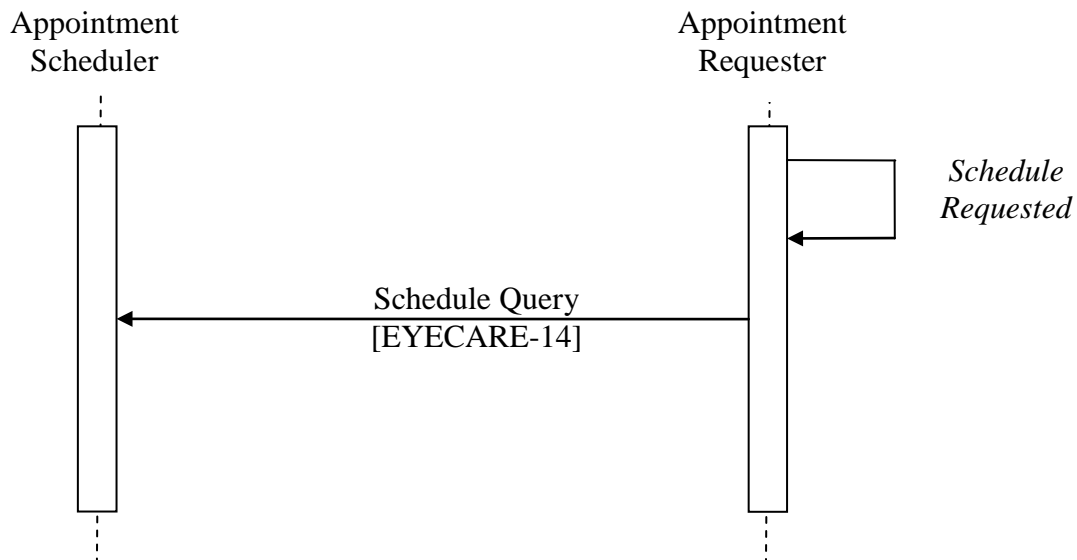

Figure 7.3-3. Basic Process Flow in Request Schedule

7.3.4 Appointment Notification

Appointment Notification is a use case wherein the Appointment Scheduler communicates appointment information to interested actors. The Appointment Scheduler manages appointments by adding, editing and/or canceling appointments. It informs all clients of the actual appointments that have been managed.

There is no requirement for any client to do anything with the information that it receives. A client must receive information. There is no requirement for the Appointment Scheduler to do anything with information except to provide notification of adds, updates and deletes. The Appointment Scheduler must include request identifiers, if they exist, and to provide a feedback loop to a requesting actor, the Appointment Scheduler shall notify a requesting actor if a request has been fulfilled. However, since not all appointments will come from internal requests, it is important that all actors that need the information be informed of an appointment, even if that actor did not request it. Below are some clinical scenarios:

- A patient calls in for an appointment because her optometrist thought she should be seen by an ophthalmologist for cataract surgery evaluation. The receptionist answering the call books an appointment for 9:30 AM on Friday in two weeks. The appointment scheduler notifies its clients that the appointment has been scheduled.

- A healthcare provider has to attend an emergency department meeting tomorrow afternoon. All of the appointments are either rescheduled or canceled. The appointment scheduler notifies its clients of the changes to the appointment schedule.

- A request is received from a healthcare provider for a new appointment, as in the Request New Appointments use case. At checkout, a staff member reviews the healthcare provider appointment requests with the patient and schedules an appointment to meet the request. The Appointment Scheduler notifies its clients of the appointment that has been scheduled, and includes the request ID.

<Rev. 1.0 - 2010-04-01>
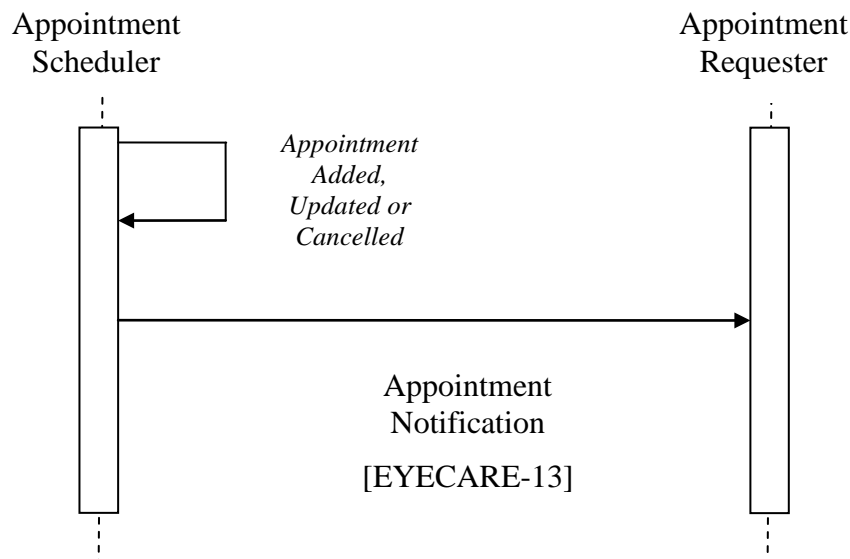
Figure 7.3-4. Basic Process Flow in Appointment Notification

7.4 Eye Care Appointment Scheduling Security Considerations

No additional security considerations for Eye Care Appointment Scheduling Profile, beyond those described in Appendix E of EYECARE TF:1, were deemed necessary.

<Appendix A> Actor Summary Definitions

Appointment Scheduler - A system that handles requests for appointments and requests for appointment information. The system may either maintain the schedule or act as the interface to an existing schedule, but is responsible for providing schedule information including both appointments requested by the Appointment Requester Actor and those that were not.

Appointment Requester - A system that sends requests for appointments and/or schedules and displays the results of those requests.

<Appendix B> Transaction Summary Definitions

Appointment Request - The Appointment Requester requests a patient appointment with varying specificity of detail as to date range and purpose of the visit. The

<Rev. 1.0 - 2010-04-01>

Appointment Scheduler receives and acknowledges the request, then either fills the request, returning the appointment, or denies the request. [EYECARE-12]

Appointment Notification - The Appointment Scheduler sends information to the Appointment Requester for any change to the schedule, including appointments added, updated or cancelled. [EYECARE-13]

Schedule Query - The Appointment Requester queries the Appointment Scheduler for a schedule based on specified parameters. The Appointment Scheduler returns the result of the query and the Appointment Requester displays the returned schedule. [EYECARE-14]

Volume 2 – Transactions

Add section 4.12

4.12 Appointment Request [EYECARE-12]

4.12.1 Scope

The Appointment Requester has the ability to request a new appointment from an Appointment Scheduler. The Appointment Requester provides information such as date range, necessary resources and patient information. For example, the Appointment Requester may request that patient "A" be scheduled for a follow-up exam in approximately two weeks. The Appointment Scheduler responds to appointment requests from the Appointment Requester with one or more appointment request responses. The SRR response will contain the necessary information for the Appointment Requester to be able to link each appointment response to its corresponding request. If the request is not processed, then the SRR is not sent.

4.12.2 Use Case Roles

Actor: Appointment Requester

Role: Sends appointment requests to the Appointment Scheduler

Actor: Appointment Scheduler

Role: Sends appointment responses to the Appointment Requester based upon appointment requests

4.12.3 Referenced Standards

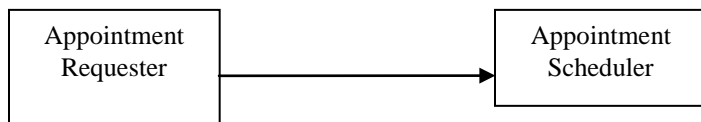HL7 Version 2.5.1 Chapters 2, 3, 4 and 10

4.12.4 Interaction Diagrams
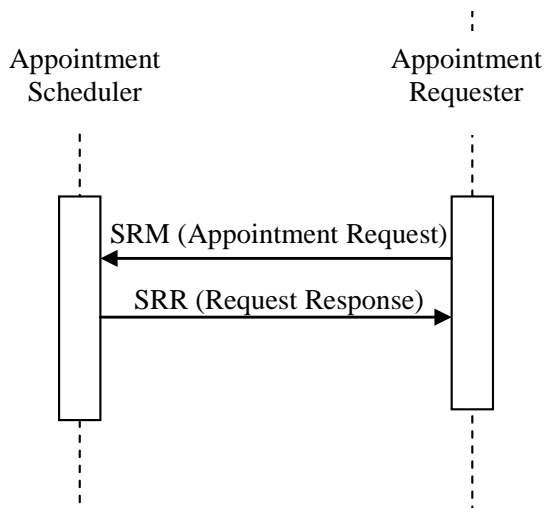
4.12.4.1 Appointment Request (SRM)

4.12.4.1.1 Scope

The Appointment Requester has the ability to request a new appointment from an Appointment Scheduler. The Appointment Requester provides information such as date range, necessary resources and patient information. For example, the Appointment Requester may request that patient "A" be scheduled for a follow-up exam in approximately two weeks

4.12.4.1.2 Trigger Events

The Appointment Requester determines that a new appointment is to be requested. The Appointment Requester triggers an SRM^S01 message to request a new appointment.

4.12.4.1.3 Message Semantics

The Appointment Requester shall use a SRM message to convey their scheduling requests to the Appointment Scheduler. If the Appointment Scheduler has created the appointment(s) related to the request, the Appointment Scheduler will then send the Appointment Requester a SRR response.

Segments AIS, AIG, AIL and AIP allows clinics\healthcare providers to provide additional information related to the requests. While information may be useful at the time of the appointment requests, it becomes critical to create a query that becomes very specific, such as a query for the schedule of a specific healthcare provider at a specific location. IHE requires the

support of these segments to allow the implementers the needed tools to create the expressive detail required by the clinic.

Segments AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail.

Although each of the segments AIS, AIG, AIL, and AIP may contain an NTE segment relevant to it's appropriate category, the AIG's NTE segment is being used as the default for general information that does not clearly associate with one particular segment. An NTE Segment within the AIG segment shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail.

The AIS segment contains information regarding services that can be scheduled. An AIS segment is required if a Universal Service ID was provided in the ARQ-7 of the request.

> Note: If a Universal Service ID is not provided then descriptive information may be included within the AIG's NTE segment.

Below is a list of required segments; however other segments are optional and may be provided.

Table 4.12-1 SRM Message

SRM^S01	Appointment request	Chapter in HL7 2.5.1
MSH	Message Header	2
ARQ	Appointment Request Information	10
PID	Patient Identification	3
{RGS	Resource Group	10
[{AIS}]	Appointment Information Service	10
[{AIG}]	Appointment Information – General Resource	10
[{NTE}]	Notes	2
[{AIL}]	Appointment Information - Location	10
[{AIP}]}	Appointment Information – Personnel Resource	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SRM message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.12.4.1.3.1 MSH Segment

The MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SRM; the second component shall have a value of S01. The third component is optional; however, if present, it shall have a value of SRM_S01.

4.12.4.1.3.2 ARQ Segment

Table 4.12-2 ARQ Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	75	EI	R			00860	Placer Appointment ID
2	75	EI	C			00861	Filler Appointment ID
3	5	NM	C			00862	Occurrence Number
4	22	EI	C			00218	Placer Group Number
5	200	CE	O			00864	Schedule ID
6	200	CE	O			00883	Request Event Reason
7	200	CE	R			00866	Appointment Reason
8	200	CE	O			00867	Appointment Type
9	20	NM	O			00868	Appointment Duration
10	200	CE	O			00869	Appointment Duration Units
11	53	DR	R			00870	Request State Date/Time Range
12	5	ST	R			00871	Priority-ARQ
13	100	RI	O			00872	Repeating Interval
14	5	ST	O			00873	Repeating Interval Duration
15	48	XCN	R			00874	Placer Contact Person
16	40	XTN	O			00875	Placer Contact Person Phone Number
17	250	XAD	O			00876	Placer Contact Address
18	80	PL	O			00877	Placer Contact location
19	250	XCN	R			00878	Entered By Person
20	250	XTN	O			00879	Entered By Phone Number
21	80	PL	O			00880	Entered By Location
22	75	EI	O			00881	Parent Placer Appointment ID
23	75	EI	O			00882	Parent Filler Appointment ID
24	22	EI	C			00883	Placer Order Number
25	22	EI	C			00884	Filler Order Number

Adapted from the HL7 Standard, version 2.5.1

Note: The term "Placer" in the HL7 table is used to represent the IHE Eye Care Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Eye Care Actor Appointment Scheduler.

<Rev. 1.0 - 2010-04-01>

Field *ARQ-7 Appointment Reason* contains the identifier code for the reason the appointment is to take place. This field can contain a Universal Service ID. If a Universal Service ID is present, then an AIS segment is required.

Field *ARQ-11 Request Start Date/Time Range* contains the general date and time of the requested appointment (i.e., 2 weeks, 3 months, 1 hour)

Fields *ARQ-12 Priority* contains the priority of the appointment. This is used to prioritize the appointment request.

Table 4.12-3 ARQ Priority Codes

Code	Description	Meaning
S	STAT	With Highest Priority
A	ASAP	Fill after S Orders
R	Routine	Default
P	Preop	
C	Callback	
T	Timing Critical	A request implying that it is critical to come as close as possible to the requested time
TS<integer>		Timing critical within <integer> seconds.
TM<integer>		Timing critical within <integer> minutes.
TH<integer>		Timing critical within <integer> hours.
TD<integer>		Timing critical within <integer> days.
TW<integer>		Timing critical within <integer> weeks.
TL<integer>		Timing critical within <integer> months.
PRN	As Needed	

Adapted from the HL7 Standard, version 2.5.1

A priority value of T is indicated when the scheduling of the appointment is critical and has to be scheduled within a specified window. For example, if a patient has an elevated intraocular pressure after [type] surgery, it is critical that the patient be scheduled for a follow-up appointment with 2-3 days following the surgery. In this scenario, the timing critical is represented in days.

4.12.4.1.3.3 AIS Segment

<Rev. 1.0 - 2010-04-01>

Table 4.12-4 AIS Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM #	ELEMENT NAME
1	4	SI	R			00890	Set ID – AIS
2	3	ID	C		0206	00763	Segment Action Code
3	250	CE	R			00238	Universal Service ID
4	26	TS	C			01202	Start Date/Time
5	20	NM	C			00891	Start Date/Time Offset
6	250	CE	C			00892	Start Date/Time Offset Units
7	20	NM	O			00893	Duration
8	250	CE	O			00894	Duration Units
9	10	IS	C		0279	00895	Allow Substitution Code
10	250	CE	C		0278	00889	Filler Status Code
11	250	CE	C	Y	0411	01474	Placer Supplemental Service Information
12	250	CE	C	Y	0411	01475	Filler Supplemental Service Information

Adapted from the HL7 Standard, version 2.5.1

Field *AIS-11 Placer Supplemental Service Information* shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide additional codified information.

Field *AIS-12 Filler Supplemental Service Information* shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide additional codified information.

4.12.4.1.4 Expected Action

The Appointment Scheduler shall receive the request for an appointment and process the request in accordance with available resources, available time slots, etc. Once an appointment is created by the Appointment Scheduler, an SRR appointment response message will be sent to the Appointment Requester.

4.14.4.2 Appointment Request Response (SRR)

4.12.4.2.1 Scope

The Appointment Scheduler responds to appointment requests from the Appointment Requester with one or more appointment request responses. The SRR response will contain the necessary

<Rev. 1.0 - 2010-04-01>

information for the Appointment Requester to be able to link each appointment response to its corresponding request. If the request is not processed, then the SRR is not sent.

4.14.4.2.2   Trigger Event

The Appointment Scheduler responds to the receipt of a schedule request message (SRM^S01) message with a schedule request response (SRR^S01) message.

4.14.4.2.3 Message Semantics

The Appointment Requester shall use a SRM message to convey their scheduling requests to the Appointment Scheduler. After the Appointment Scheduler has created the appointment, it shall respond to an SRM message with an SRR response message to convey the scheduled appointment information upon request fulfillment. If a request is neither fulfilled nor denied, then no message is sent.

The SCH segment contains appointment schedule information. The date and time of the appointment have been deprecated in version 2.5.1 of the HL7 standard from previous versions. Certain fields have been retained for backwards compatibility. The TQ1 segment shall be used to convey date and time values and shall be constructed in accordance to chapter 4, section 4.5.4 of version 2.5.1 of the HL7 standard.

The TQ1 segment is required if the Filler Status Code is "Booked". It may be provided otherwise.

Segments AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail. Below is a list of required segments, other segments are optional and may be present.

> Note: The detail of the SRR Response may not match the SRM request in certain implementations. Validating the specific details of the request is outside the scope of this proposition. Segments AIS, AIG, AIL, AIP are preferred but are optional and may not be returned within the SRR response.

Table 4.12-5 SRR Message

SRR^S01	Appointment request response	Chapter in HL7 2.5.1
MSH	Message Header	2
MSA	Message Acknowledgement	2
SCH	Schedule Activity Information	10
[{TQ1}]	Timing/Quality	4
PID	Patient Identification	3
{RGS	Resource Group	10

SRR^S01	Appointment request response	Chapter in HL7 2.5.1
[{AIS}]	Appointment Information - Service	10
[{AIG}]	Appointment Information - General	10
[{AIL}]	Appointment Information – Location	10
[{AIP}]]}	Appointment Information – Personnel Resource	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SRR message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.12.4.2.3.1 MSH Segment

The MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SRR; the second component shall have a value of S01. The third component is optional; however, if present, it shall have a value of SRR_S01.

4.12.4.2.3.2 SCH Segment

Table 4.12-6 SCH Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	75	EI	R			00860	Placer Appointment ID
2	75	EI	C			00861	Filler Appointment ID
3	5	NM	C			00862	Occurrence Number
4	22	EI	O			00218	Placer Group Number
5	250	CE	O			00864	Schedule ID
6	250	CE	R			00883	Event Reason
7	250	CE	O		0276	00866	Appointment Reason
8	250	CE	O		0277	00867	Appointment Type
9	20	NM	B			00868	Appointment Duration
10	250	CE	B			00869	Appointment Duration Units
11	200	TQ	B	Y		00884	Appointment Timing Quantity
12	250	XCN	O	Y		00874	Placer Contact Person
13	250	XTN	O			00875	Placer Contact Phone Number
14	250	XAD	O	Y		00876	Placer Contact Address
15	80	PL	O			00877	Placer Contact Location

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
16	250	XCN	R	Y		00885	Filler Contact Person
17	250	XTN	O			00886	Filler Contact Phone Number
18	250	XAD	O	Y		00887	Filler Contact Address
19	80	PL	O			00888	Filler Contact Location
20	250	XCN	R	Y		00878	Entered by Person
21	250	XTN	O	Y		00879	Entered by Phone Number
22	80	PL	O			00880	Entered by Location
23	75	EI	O			00881	Parent Placer Appointment ID
24	75	EI	C			00882	Parent Filler Appointment ID
25	250	CE	R		0278	00889	Filler Status Code
26	22	EI	C	Y		00216	Placer Order Number
27	22	EI	C	Y		00217	Filler Order Number

Adapted from the HL7 Standard, version 2.5.1

Note: The term "Placer" in the HL7 table is used to represent the IHE Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Actor Appointment Scheduler.

Field *SCH-1 Placer Appointment ID* shall be filled in with the appointment ID received from the Appointment Requester. This allows the Appointment Requester to link requests with responses from the Appointment Scheduler.

Field *SCH-2 Filler Appointment ID* is required when an appointment has a status code in SCH-Field 25 of "Waitlist, Booked Overbooked or Declined, otherwise this field may be present. This field shall contain the Appointment Scheduler's unique ID related to the specific appointment that was created based on a specific request.

Fields *SCH-6 Event Reason* is required for HL7 backwards compatibility. IHE recommends inserting a NULL value if backwards compatibility is not required for a given implementation.

Fields *SCH-11 Appointment Timing Quantity* has been deprecated. The TQ1 segment is better suited to convey appointment timing and quality related to the specified appointment. It is maintained here for backwards compatibility.

Fields *SCH-25 Filler Status Codes* is required to convey the current status of the appointment. HL7 Table 0278 shall be used and has been extended to support the additional appointment status code listed below.

Table 4.12-7 Extension to Filler Status Codes

Value	Description
Declined	The indicated appointment request was declined by the Appointment Scheduler

4.12.4.2.3.3 TQ1 Segment

<Rev. 1.0 - 2010-04-01>

Table 4.12-8 TQ1 Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			01627	Set ID - TQ1
2	20	CQ	O			01628	Quantity
3	540	RPT	O	Y	0335	01629	Repeat Pattern
4	20	TM	O	Y		01630	Explicit Time
5	20	CQ	O	Y		01631	Relative Time and Units
6	20	CQ	O			01632	Service Duration
7	26	TS	R			01633	Start date/time
8	26	TS	O			01634	End date/time
9	250	CWE	O	Y	0485	01635	Priority
10	250	TX	O			01636	Condition text
11	250	TX	O			01637	Text instruction
12	10	ID	C		0472	01638	Conjunction
13	20	CQ	O			01639	Occurrence duration
14	0	NM	O			01640	Total occurrences

Adapted from the HL7 Standard, version 2.5.1

Field *TQ1-7 – Start date/time* shall contain the explicit start date and time of the appointment.

4.12.4.2.4 Expected Action

The Appointment Scheduler shall send the Appointment Requester SRR request response messages after a request has been successfully processed. The Appointment Requester will accept the request response and link the original request to the request response providing a closed loop request/response workflow.

4.12.5 Security Considerations

No additional security considerations for the Appointment Request transaction, beyond those described in Appendix E of EYECARE TF:1, were deemed necessary.

4.12.5.1 Security Audit Considerations

There are no specific ATNA security audit events associated with the Appointment Request transaction and requirements on the encoding of that audit event.

4.12.5.1.1 Actor Specific Security Considerations

No additional security considerations for Appointment Scheduler and Appointment Requester Actors beyond those described in Appendix E of EYECARE TF: 1, were deemed necessary.


Add section 4.13

4.13 Appointment Notification [EYECARE-13]

4.13.1 Scope

In the Appointment Notification Transaction, the Appointment Scheduler conveys appointment notifications to the Appointment Requester actor when new appointment bookings, appointment rescheduling or appointment cancellations occur. These notifications contain the date(s) and time(s) of resource scheduling information. It may also notify an Appointment Requester of the cancellation of appointment bookings.

4.13.2 Use Case Roles

```
┌────────────────┐              ┌────────────────┐
│  Appointment   │─────────────▶│  Appointment   │
│  Scheduler     │              │  Requester     │
└────────────────┘              └────────────────┘
```
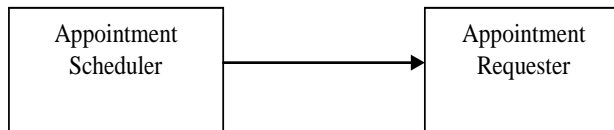
Actor: Appointment Scheduler

Role: Sends appointment notifications to Appointment Requester
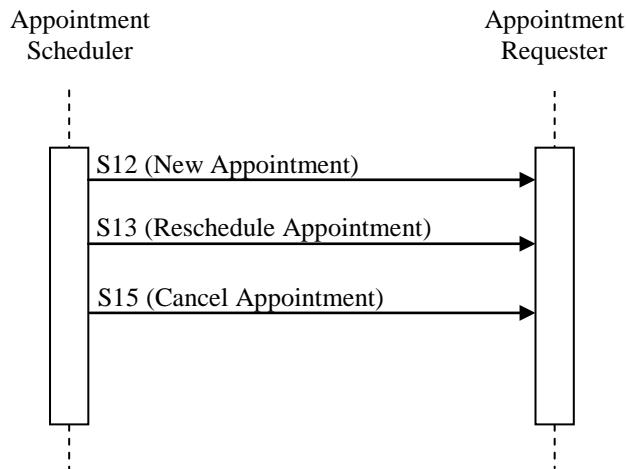
Actor: Appointment Requester

Role: Receives appointment notifications from Appointment Scheduler

4.13.3 Standards Referenced

HL7 Version 2.5.1 Chapters 2, 3, 4 and 10

<Rev. 1.0 - 2010-04-01>   Copyright © 2010: IHE International, Inc.

4.13.4 Interaction Diagram

4.13.4.1   Appointment Notification – New Booking (S12)

4.13.4.1.1 Scope

Notification of new bookings provides a means to broadcast new appointment bookings created by the Appointment Scheduler. This may occur based upon a healthcare provider appointment request (SRM) or other events, such as a patient calling a clinic for an appointment (i.e., not generated via an SRM).

4.13.4.1.2   Trigger Event

The Appointment Scheduler creates a new appointment booking. The Appointment Scheduler broadcasts an SIU S12 message to subscribed Appointment Requesters. Each appointment may satisfy zero or more resources.

4.13.4.1.3   Message Semantics

The Appointment Scheduler shall use the SIU S12 message for new appointment bookings. The message semantics follow the SIU^S12 message as specified in HL7 v2.5.1 Chapter 10. Refer to HL7 Standard for general message semantics. Below is a list of required segments; however other segments are optional and may be provided.

Segments AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail.

Below is a list of required segments, other segments are optional and may be present.

Table 4.13-1 HL7 SIU S12 Message

SIU^S12	Schedule information new booking	Chapter in HL7 2.5.1
MSH	Message Header	2
SCH	Schedule Activity Information	10
{TQ1}	Timing and Quality	4
PID	Patient Identification	3
{RGS	Resource Group	10
[{AIS}]	Appointment Information – Service	10
[{AIG}]	Appointment Information – General	10
[{AIL}]	Appointment Information – Location	10
[{AIP}]}	Appointment Information – Personnel Resource	10

Adapted from the HL7 Standard, version 2.5.1

There is one group (RGS, AIS, AIG, AIL, AIP) per appointment booking per patient. It is repeated when several appointment bookings have been made for the same request for the same patient.

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SIU message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.13.4.1.3.1 MSH Segment

The MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SIU; the second component shall have a value of S12. The third component is optional; however, if present, it shall have a value of SIU_S12.

4.13.4.1.3.2 SCH Segment

The SCH segment shall be constructed in accordance with section 4.12.4.2.3.2 with the following exception:

<Rev. 1.0 - 2010-04-01>

Table 4.13-2 SCH Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	75	EI	C			00860	Placer Appointment ID

Note: The term "Placer" in the HL7 table is used to represent the IHE Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Actor Appointment Scheduler.

SCH-1 Placer Appointment ID is required if the notification is based upon an SRM request message [Appointment Request].

4.13.4.1.3.3 TQ1 Segment

The TQ1 segment shall be constructed in accordance with section 4.12.4.2.3.3.

4.13.4.1.4   Expected Action

The Appointment Requester shall accept notifications for new appointment bookings and if based upon a previous appointment request (SRM), it shall link them to the original request. This provides the Appointment Requester the ability to provide information regarding the disposition of an appointment request. How this is conveyed to the User is outside the scope of IHE.

4.13.4.2   Appointment Notification – Reschedule Booking (S13)

4.13.4.2.1 Scope

Frequently appointment bookings will be rescheduled for a plethora of reasons. The Appointment Scheduler shall broadcast appointment rescheduling to the Appointment Requester.

4.13.4.2.2   Trigger Event

In certain cases, appointments may be rescheduled within the Eye Care Department. This message is sent by the Appointment Scheduler to notify the Appointment Requester that an existing appointment has been rescheduled. The information in the AIS segment describes the new date(s) and time(s) to which the previously booked appointment has been moved to. Additionally, it describes the unchanged information in the previously booked appointments.

4.13.4.2.3   Message Semantics

The Appointment Scheduler shall use the SIU S13 message for rescheduling of appointment bookings. The message semantics follow the SIU^S13 message as specified in HL7 Standard V2.5.1 Chapter 10. Refer to HL7 Standard for general message semantics. Below is a list of required segments; however other segments are optional and may be provided.

Segments AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail. Below is a list of required segments, other segments are optional and may be present.

Table 4.13-3 HL7 SIU S13 Message

SIU^S13	Schedule information reschedule booking	Chapter in HL7 2.5.1
MSH	Message Header	2
SCH	Schedule Activity Information	10
{TQ1}	Timing and Quality	4
PID	Patient Identification	3
{RGS	Resource Group Segment	10
[{AIS}]	Appointment Information - Service	10
[{AIG}]	Appointment Information - General	10
[{AIL}]	Appointment Information – Location	10
[{AIP}]}	Appointment Information – Personnel Resource	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SIU message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.13.4.2.3.1 MSH Segment

The MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SIU; the second component shall have a value of S13. The third component is optional; however, if present, it shall have a value of SIU_S13.

4.13.4.2.3.2 SCH Segment

The SCH segment shall be constructed in accordance with section 4.12.4.2.3.2 with the following exception:

Table 4.13-4 SCH Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	75	EI	C			00860	Placer Appointment ID

Note: The term "Placer" in the HL7 table is used to represent the IHE Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Actor Appointment Scheduler.

SCH-1 Placer Appointment ID is required if the notification is based upon an SRM request message [Appointment Request].

4.13.4.2.3.3 TQ1 Segment

The TQ1 segment shall be constructed in accordance with section 4.12.4.2.3.3.

4.13.4.2.4 Expected Action

The Appointment Requester shall accept notifications for appointment updates and if based upon a previous appointment request (SRM), it shall link them to the original request. This provides the Appointment Requester the ability provide information regarding the disposition of an appointment request. How this is conveyed to the User is outside the scope of IHE.

4.13.4.3   Appointment Notification – Canceled Bookings (S15)

4.13.4.3.1 Scope

Frequently appointment bookings will be canceled for a plethora of reasons. The Appointment Scheduler broadcasts appointment cancelations to the Appointment Requester.

4.13.4.3.2   Trigger Events

This event is triggered when existing appointment bookings have been cancelled by an Appointment Scheduler.

4.13.4.3.3   Message Semantics

The Appointment Scheduler shall use the SIU S15 message for canceled appointment bookings. The message semantics follow the SIU^S15 message as specified in HL7 Standard V2.5.1 Chapter 10. Refer to HL7 Standard for general message semantics. Below is a list of required segments; however other segments are optional and may be provided.

Segments AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail.

Table 4.13-5 HL7 SIU S15 Message

SIU^S15	Schedule information reschedule booking	Chapter in HL7 2.5.1
MSH	Message Header	2
SCH	Schedule Activity Information	10
{TQ1}	Timing and Quality	4
PID	Patient Identification	3
{RGS	Resource Group Segment	10
[{AIS}]	Appointment Information - Service	10
[{AIG}]	Appointment Information - General	10
[{AIL}]	Appointment Information – Location	10
[{AIP}]}	Appointment Information – Personnel Resource	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SIU message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.13.4.3.3.1 MSH Segment

The MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SIU; the second component shall have a value of S15. The third component is optional; however, if present, it shall have a value of SIU_S15.

4.13.4.3.3.2 SCH Segment

The SCH segment shall be constructed in accordance with section 4.12.4.2.3.2 with the following exception:

Table 4.13-6 SCH Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	75	EI	C			00860	Placer Appointment ID

<Rev. 1.0 - 2010-04-01>

Note: The term "Placer" in the HL7 table is used to represent the IHE Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Actor Appointment Scheduler.

SCH-1 Placer Appointment ID is required if the notification is based upon an SRM request message [Appointment Request].

4.13.4.3.3 TQ1 Segment

The TQ1 segment shall be constructed in accordance with section 4.12.4.2.3.3.

4.13.4.3.4 Expected Action

The Appointment Requester shall accept notifications for appointment cancellations and if based upon a previous appointment request (SRM), it shall link them to the original request. This provides the Appointment Requester the ability to provide information regarding the disposition of an appointment request. How this is conveyed to the User is outside the scope of IHE.

4.13.5 Security Considerations

No additional security considerations for the Appointment Notification transactions, beyond those described in Appendix E of EYECARE TF:1, were deemed necessary.

4.13.5.1 Security Audit Considerations

There are no specific ATNA security audit events associated with the Appointment Notification transaction and requirements on the encoding of that audit event.

4.13.5.1.1 Actor Specific Security Considerations

No additional security considerations for Appointment Scheduler and Appointment Requester Actors beyond those described in Appendix E of EYECARE TF: 1, were deemed necessary.

Add section 4.14

4.14 Schedule Query [EYECARE-14]

4.14.1 Scope

The Appointment Requester has the ability to query the Appointment Scheduler to obtain comprehensive and current scheduling information. The Appointment Requester provides information such as date range, resources, location and other information within a query to obtain the most current scheduling information from the Appointment Scheduler. For example, the Appointment Requester may query the Appointment Scheduler for the current schedule information for a given location for a given date.

4.14.2 Use Case Roles
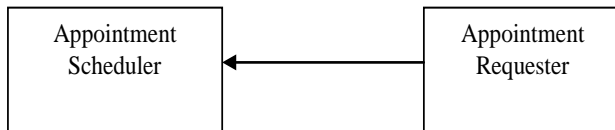
Actor: Appointment Requester

Role: Sends schedule query to the Appointment Scheduler
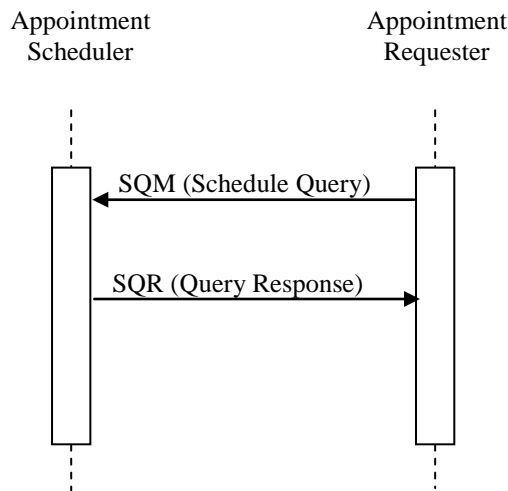
Actor: Appointment Scheduler

Role: Receives schedule query and provides the results to the Appointment Requester

4.14.3 Standards Referenced

HL7 Version 2.5.1 Chapters 2, 3, 4 and 10

4.14.4 Interaction Diagram

4.14.4.1   Schedule Query Request (SQM)

4.14.4.1.1 Scope

The Appointment Scheduler is the actor which provides information regarding appointment bookings. The SQM message is constructed and issued by the Appointment Requester to the Appointment Scheduler to obtain current appointment booking information.

4.14.4.1.2 Trigger Event

The Appointment Requester issues an SQM^S25 message to query the Appointment Scheduler. The Appointment Scheduler returns the results of the query using the Schedule Query Response SQR^S25 message.

4.14.4.1.3 Message Semantics

The Appointment Requester shall use the SQM S25 message to initiate a query for scheduled appointments. The message semantics follow the SQM^S25 message as specified in HL7 Standard V2.5.1, Chapter 10. Refer to HL7 Standard for general message semantics. Below is a list of required segments; however other segments are optional and may be provided.

Segments ARQ, PID, AIS, AIG, AIL and AIP allows clinics\healthcare providers to provide additional information related to the requests. While information may be useful at the time of the appointment requests, it becomes critical to create a query that becomes very specific, such as a query for the schedule of a specific healthcare provider at a specific location. IHE requires the support of these segments to allow the implementers the needed tools to create the expressive detail required by the clinic.

<Rev. 1.0 - 2010-04-01>

Segments ARQ, PID, AIS, AIG, AIL and AIP shall be implemented by the Appointment Scheduler and Appointment Requester if the clinic deems it necessary to provide the expressive detail.

Table 4.14-1 HL7 SQM S25 Message

SQM^S25	Schedule query request	Chapter in HL7 2.5.1
MSH	Message Header	2
QRD	Query Definition	5
[ARQ]	Appointment Request	10
[PID]	Patient Identification	3
{RGS	Resource Group	10
[{AIS}]	Appointment Information – Service	10
[{AIG}]	Appointment Information – General	10
[{AIP}]	Appointment Information – Personnel	10
[{AIL}]}	Appointment Information – Location	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 SQR message sent by the receiver of the SQM message to its sender. See section 10.5.3 "Schedule Query Message and Response" of version 2.5.1 of the HL7 standard.

4.14.4.1.3.1 MSH Segment

MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SQM; the second component shall have a value of S25. The third component is optional; however, if present, it shall have a value of SQM_S25.

4.14.4.1.3.2 QRD Segment

Field *QRD-3 Query Priority* shall have the value "I" for immediate response. Deferred response mode is not supported.

> Note: The QRD [What and Who] are used when querying for a patient name (i.e. Jane Smith). If you wish to query for a specific patient id, the PID 3 Patient Identifier List is used. The QRD, "Who" and "What", are also used to query for a named healthcare provider such as Dr. Jones.

<Rev. 1.0 - 2010-04-01>

4.14.4.1.3.3 ARQ, PID, AIS, AIG, AIP and AIL Segments

All of the fields in the segments ARQ, PID, AIS, AIG, AIP and AIL are optional with respect to a query. The Appointment Requester shall support the inclusion of fields in table XXX in a query formulation and the Appointment Scheduler shall support the ability to limit the results of the query response based on those fields.

Table 4.14-1 ARQ, PID, AIS, AIG, AIP and AIL Segments

SEGMENT	SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
ARQ	11	53	DR	C			00870	Request State Date/Time Range
PID	3			C			00106	Patient Identifier List
AIS	3	250	CE	C			00238	Universal Service ID
AIG	3	250	CE	C			00897	Resource ID
AIG	4	250	CE	C			00898	Resource Type
AIP	3	250	CE	C			00897	Resource ID
AIP	4	250	CE	C			00898	Resource Type
AIL	3	80	PL	C	Y		00903	Location Resource ID
AIL	4	250	CE	C		0305	00904	Location Type-AIL

Adapted from the HL7 Standard, version 2.5.1

Note: The term "Placer" in the HL7 table is used to represent the IHE Eye Care Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Eye Care Actor Appointment Scheduler.

4.14.4.1.4 Expected Action

The Appointment Scheduler shall accept the query and respond with a SQR query response.

4.14.4.2 Schedule Query Response (SQR)

4.14.4.2.1 Scope

Frequently the Appointment Requester requires the ability to provide a holistic view of appointment bookings for a given location, healthcare provider or resource. The Appointment Scheduler is the actor which provides scheduling information. The SQR message is constructed and issued by the Appointment Scheduler in response to a Schedule Query Request (SQM) message to obtain current appointment booking information.

4.14.4.2.2 Trigger Event

38

_____

In response to an Appointment Requester Query, the Appointment Scheduler issues an SQR^S25 response message to the Appointment Requester.

4.14.4.2.3 Message Semantics

The Appointment Scheduler shall use the SQR S25 message for responses to scheduled queries. The message semantics follow the SQR^S25 message as specified in HL7 Standard Version 2.5.1, Chapter 10. Refer to HL7 Standard for general message semantics.

> Note: While the HL7 standard provides support for deferred response modes for Schedule Query Response, they are outside the scope of this document.

The PID segment is required when a query result is linked to a known patient. There are circumstances that query results are not linked to a known patient such as "Blocked" appointment slots. In those circumstances, the PID segment will not be provided in the query results.

Segments AIS, AIG, AIL and AIP allow clinic\healthcare providers to communicate additional information related to appointments. Whenever available, the AIS, AIG, AIL and AIP segments shall be returned. Below is a list of required segments; however other segments are optional and may be provided.

Table 4.14-2 HL7 SQR S25 Message

SQR^S25	Schedule query response	Chapter in HL7 2.5.1
MSH	Message Header	2
MSA	Message Acknowledge	2
QAK	Query Acknowledgement	5
{SCH	Scheduling Activity Information	10
{TQ1}	Timing Quantity	10
[PID]	Patient Identification	3
{RGS	Resource Group	10
[{AIS}]	Appointment Information – Service	10
[{AIG}]	Appointment Information – General	10
[{AIP}]	Appointment Information – Personnel	10
[{AIL}]}	Appointment Information – Location	10

Adapted from the HL7 Standard, version 2.5.1

Each message shall be acknowledged by the HL7 ACK message sent by the receiver of the SIU message to its sender. See section RAD TF-2: 2.4.3 "Acknowledgement Modes" of "IHE

_____

<Rev. 1.0 - 2010-04-01>

Radiology Technical Framework Volume II" for definition and discussion of the HL7 ACK message.

4.14.4.2.3.1 MSH Segment

MSH segment shall be constructed as defined in section RAD TF-2: 2.4.2 "Message Control" of "IHE Technical Framework Volume II".

Field *MSH-9 Message Type* shall have at least two components. The first component shall have a value of SQR; the second component shall have a value of S25. The third component is optional; however, if present, it shall have a value of SQR_S25.

4.14.4.2.3.2 SCH Segment

The SCH segment shall be constructed in accordance with chapter 10 section 10.6.2 of version 2.5.1 of the HL7 standard with the following exception:

Table 4.14-3 SCH Segment

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
25	250	CE	R		0278	00889	Filler Status Code

Note: The term "Placer" in the HL7 table is used to represent the IHE Actor Appointment Requester. The term "Filler" in the HL7 Table is used to represent the IHE Actor Appointment Scheduler.

Note: The Appointment Scheduler returns all appointments that match the query (i.e. for all filler status codes), however it is up to the Appointment Requester to filter and display the results as appropriate. The Appointment Requester is recommended to be configurable by the clinic to filter and report filler status codes desired.

4.14.4.2.3.3 TQ1 Segment

The TQ1 segments shall be constructed as defined in section 4.12.4.2.3 "Message Semantics".

4.14.4.2.4 Expected Action

The Appointment Requester shall accept the query results and be able to display the results to the user. How this is conveyed to the User is outside the scope of IHE.

<Rev. 1.0 - 2010-04-01>

4.14.5 Security Considerations

No additional security considerations for the Schedule Query transactions, beyond those described in Appendix E of EYECARE TF:1, were deemed necessary.

4.14.5.1 Security Audit Considerations

There are no specific ATNA security audit events associated with the Schedule Query transaction and requirements on the encoding of that audit event.

4.14.5.1.1 Actor Specific Security Considerations

No additional security considerations for Appointment Scheduler and Appointment Requester Actors beyond those described in Appendix E of EYECARE TF: 1, were deemed necessary.