Esquema proposto para workflow

CAST
Plataforma de Integração

Spacemedical
Plataforma Sentinel

Spacemedical
Electrocardiografos

Spacemedical
M.A.P.A.s

OMG^O19
ORM^O01
Create, update, cancel orders

Inicio do exame. Colocação no Paciente

ACK

Fim do exame. Upload do exame

OMG^O19 (complete)

Técnico

Pedido de worklist
TCP/IP

Técnico

ECG realizado através de worklist
Exame realizado
Upload manual ou automático por FTP

ECG realizado sem worklist
Exame realizado
Upload manual ou automático por FTP

Técnico

ORU^R01
PDF embedded ou com link
Após validação de relatório ou
após o recebimento do exame

Acesso para (re)validação de relatório

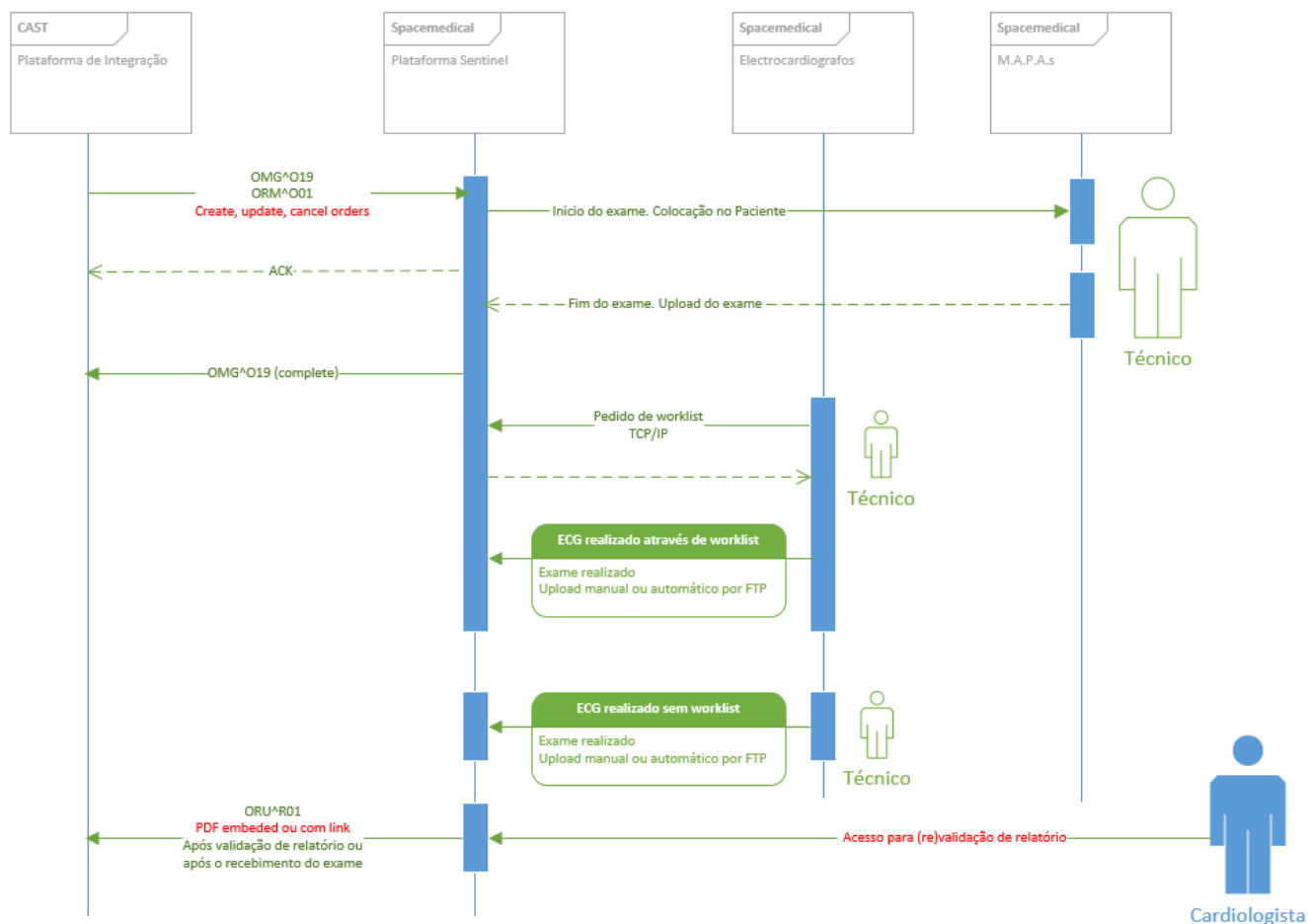Cardiologista

MENSAGENS HL7

Este documento descreve as mensagens HL7 suportadas pela plataforma SENTINEL e a sua configuração pré-definida.

OMG^O19 Placer Order Management (OMGO19ToCmf.xslt)

CAMPO	CONFIGURAÇÃO PRÉ-DEFINIDA
EVN.2	Case Date Opened
EVN.2	Admitted
OBR.4.1	Test Details Order Procedure
OBR.4.2	Test Details Order Procedure
OBR.16.1	Test Details Ordering Physician Name
OBR.16.2	Test Details Ordering Physician Name
OBR.16.3	Test Details Ordering Physician Name

OBX.3.2 = "WEIGHT"
    OBX.6 = UNITS
    OBX.5 = VALUE
	Patient Weight
	default: Kilogrammes (KG)
	supports: pounds (LB), stones (STONES), kilogrammes (KG)

OBX.3.2 = "HEIGHT" OBX.6 = UNITS	Patient Height default: metres (M)

OBX.5 = VALUE	supports: metres (M), inches (inches), centimetres (CM)
ORC.2.1	Test Details Order ID
ORC.2.2	Test Details Order ID
ORC.7.4	Test Details Order Requested Date and Time
PID.3.1	Patient ID
PID.3.4	Patient Organisation (default organisation if missing)
PID.5.1	Patient Family Name (last name)
PID.5.2	Patient Given Name (first name)
PID.5.3	Patient Middle Initials
PID.5.5	Patient Title
PID.7	Patient Date of Birth
PID.8	Patient Gender
PID.10	Patient Ethnicity
PID.11.1	Patient Address Line 1
PID.11.2	Patient Address Line 2
PID.11.3	Patient City
PID.11.4	Patient County/Region/State
PID.11.5	Patient Postcode/Zipcode
PID.11.6	Patient Country
PID.13	Patient Home Telephone number
PID.19	Patient Second ID
PV1.2	Case Class (converted to in /out-patient)
PV1.19	Case number
PV1.3.1	Patient Point of care (either in or out-patient depends on PV1.2)
PV1.3.2	Patient Ward (either in or out-patient depends on PV1.2)
PV1.3.3	Patient Bed (either in or out-patient depends on PV1.2)
PV1.3.4	Patient Facility Name (either in or out-patient depends on PV1.2)
PV1.7.1	Attending Physician (Consultant) Staff Number
PV1.7.2	Attending Physician (Consultant) Last Name
PV1.7.3	Attending Physician (Consultant) First Name
PV1.7.6	Attending Physician (Consultant) Title
PV1.8.1	Referring Physician Staff Number
PV1.8.2	Referring Physician Last Name
PV1.8.3	Referring Physician First Name
PV1.8.6	Referring Physician Title
ZIS.1	Test Details Order Comments
ZPI.4.1	Maiden Name

ORM^O01 General Order Message (ORMO01ToCmf.xslt)

FIELD	OUT OF BOX CONFIGURATION
EVN.2	Case Date Opened
EVN.2	Admitted
OBR.4.1	Test Details Order Procedure
OBR.4.2	Test Details Order Procedure
OBR.16.1	Test Details Ordering Physician Name
OBR.16.2	Test Details Ordering Physician Name
OBR.16.3	Test Details Ordering Physician Name
OBX.3.2 = "WEIGHT"	Patient Weight
OBX.6 = UNITS	default: Kilogrammes (KG)
OBX.5 = VALUE	supports: pounds (LB), stones (STONES), kilogrammes (KG)
OBX.3.2 = "HEIGHT"	Patient Height
OBX.6 = UNITS	default: metres (M)
OBX.5 = VALUE	supports: metres (M), inches (inches), centimetres (CM)
ORC.2.1	Test Details Order ID

ORC.2.2	Test Details Order ID
ORC.7.4	Test Details Order Requested Date and Time
PID.3.1	Patient ID
PID.3.4	Patient Organisation (default organisation if missing)
PID.5.1	Patient Family Name (last name)
PID.5.2	Patient Given Name (first name)
PID.5.3	Patient Middle Initials
PID.5.5	Patient Title
PID.7	Patient Date of Birth
PID.8	Patient Gender
PID.10	Patient Ethnicity
PID.11.1	Patient Address Line 1
PID.11.2	Patient Address Line 2
PID.11.3	Patient City
PID.11.4	Patient County/Region/State
PID.11.5	Patient Postcode/Zipcode
PID.11.6	Patient Country
PID.13	Patient Home Telephone number
PID.19	Patient Second ID
PV1.2	Case Class (converted to in /out-patient)
PV1.19	Case number
PV1.3.1	Patient Point of care (either in or out-patient depends on PV1.2)
PV1.3.2	Patient Ward (either in or out-patient depends on PV1.2)
PV1.3.3	Patient Bed (either in or out-patient depends on PV1.2)
PV1.3.4	Patient Facility Name (either in or out-patient depends on PV1.2)
PV1.7.1	Attending Physician (Consultant) Staff Number
PV1.7.2	Attending Physician (Consultant) Last Name
PV1.7.3	Attending Physician (Consultant) First Name
PV1.7.6	Attending Physician (Consultant) Title
PV1.8.1	Referring Physician Staff Number
PV1.8.2	Referring Physician Last Name
PV1.8.3	Referring Physician First Name
PV1.8.6	Referring Physician Title
ZIS.1	Test Details Order Comments
ZPI.4.1	Maiden Name

Modalidades na worklist

Logical Observation Identifiers Names and Codes (LOINC) são utilizados para definir a modalidade do exame incluída no pedido do HIS ou a modalidade do relatório/observações a ser incluída na resposta ao HIS, quando um código apropriado exista.

O código LOINC codes tem que ser identificado nas mensagens de retorno para que o HIS possa interpretar correctamente a mensagem.

As seguintes modalidades podem ser pedidas:

HL7 code	Modalidade de exames no Sentinel
LOINC code **11524-0**	ECG de repouso
LOINC code **18752-6**	Prova de esforço
LOINC code **18754-2**	Holter
"Blood Pressure"	MAPA

"Rhythm"	ECG de ritmo
"Event"	Testes costumizáveis (ex: Holter de eventos)
"Spirometry"	Espirometria
"Plethysmography"	Pletismografia

ORU^R01

Location	Max Length	Type	Required	Description	Comment
MSH.1	1	ST	R	Field Separator	Default is |
MSH.2	4	ST	R	Encoding Characters	Default is ^~\&
MSH.3	227	HD	O	Sending Application	Default is Sentinel
MSH.4	227	HD	O	Sending Facility	Default is Cardiology
MSH.5	227	HD	O	Receiving Application	Configurable
MSH.6	227	HD	O	Receiving Facility	Configurable
MSH.7	26	TS	R	Date/Time of Message	
MSH.8	40	ST	0	Security	
MSH.9	15	MSG	R	Message Type	ORU^R01
MSH.10	20	ST	R	Message Control ID	
MSH.11	3	PT	R	Processing ID	Default is P
MSH.12	60	VID	R	Version ID	Default is 2.3.1
PID.1	4	SI	0	SetID	
PID.2	20	CX	B	Patient ID	
PID.3	250	CX	R	Patient Identifier List	By default, simple string expected
PID.4	20	CX	B	Alternate Patient ID – PID	
PID.5	250	XPN	R	Patient Name	
PID.6	250	XPN	O	Mother's Maiden Name	
PID.7	26	TS	O	Date/Time of Birth	
PID.8	1	IS	O	Administrative Sex	
PID.9	250	XPN	B	Patient Alias	
PID.10	250	CE	O	Race	
PID.11	250	XAD	O	Patient Address	

PID.12	4	IS	B	Country Code	
PID.13	250	XTN	O	Phone Number - Home	
PID.14	250	XTN	O	Phone Number – Business	
PID.15	250	CE	O	Primary Language	
PID.16	250	CE	O	Marital Status	
PID.17	250	CE	O	Religion	
PID.18	250	CX	O	Patient Account Number	
PID.19	16	ST	B	SSN Number – Patient	
PV1.1	4	SI	O	Set ID - PV1	
PV1.2	1	IS	R	Patient Class	
PV1.3	80	PL	O	Assigned Patient Location	
PV1.4	2	IS	O	Admission Type	
PV1.5	250	CX	O	Preadmit Number	
PV1.6	80	PL	O	Prior Patient Location	
PV1.7	250	XCN	O	Attending Doctor	
PV1.8	250	XCN	O	Referring Doctor	
PV1.9	250	XCN	B	Consulting Doctor	
PV1.10	3	IS	O	Hospital Service	
PV1.11	80	PL	O	Temporary Location	
PV1.12	2	IS	O	Preadmit Test Indicator	
PV1.13	2	IS	O	Re-admission Indicator	
PV1.14	6	IS	O	Admit Source	
PV1.15	2	IS	O	Ambulatory Status	
PV1.16	2	IS	O	VIP Indicator	
PV1.17	250	XCN	O	Admitting Doctor	
PV1.18	2	IS	O	Patient Type	
PV1.19	250	CX	O	Visit Number	
PV1.20	50	FC	O	Financial Class	

PV1.21	2	IS	O	Charge Price Indicator	
PV1.22	2	IS	O	Courtesy Code	
PV1.23	2	IS	O	Credit Rating	
PV1.24	2	IS	O	Contract Code	
PV1.25	8	DT	O	Contract Effective Date	
PV1.26	12	NM	O	Contract Amount	
PV1.27	3	NM	O	Contract Period	
PV1.28	2	IS	O	Interest Code	
PV1.29	4	IS	O	Transfer to Bad Debt Code	
PV1.30	8	DT	O	Transfer to Bad Debt Date	
PV1.31	10	IS	O	Bad Debt Agency Code	
PV1.32	12	NM	O	Bad Debt Transfer Amount	
PV1.33	12	NM	O	Bad Debt Recovery Amount	
PV1.34	1	IS	O	Delete Account Indicator	
PV1.35	8	DT	O	Delete Account Date	
PV1.36	3	IS	O	Discharge Disposition	
PV1.37	47	DLD	O	Discharged to Location	
PV1.38	250	CE	O	Diet Type	
PV1.39	2	IS	O	Servicing Facility	
PV1.40	1	IS	B	Bed Status	
PV1.41	2	IS	O	Account Status	
PV1.42	80	PL	O	Pending Location	
PV1.43	80	PL	O	Prior Temporary Location	
PV1.44	26	TS	O	Admit Date/Time	
OBR.1	4	SI	O	Set ID – OBR	Always 1
OBR.2	22	EI	C	Placer Order Number	Placer number from ORM/OMG
OBR.3	22	EI	C	Filler Order Number	Sentinel-generated filler number
OBR.4	250	CE	R	Universal Service Identifier	Service ID from ORM/OMG

OBR.5	2	ID	B	Priority – OBR	
OBR.6	26	TS	B	Requested Date/Time	
OBR.7	26	TS	C	Observation Date/Time #	
OBR.8	26	TS	O	Observation End Date/Time #	
OBR.9	20	CQ	O	Collection Volume *	
OBR.10	250	XCN	O	Collector Identifier *	
OBR.11	1	ID	O	Specimen Action Code *	
OBR.12	250	CE	O	Danger Code	
OBR.13	300	ST	O	Relevant Clinical Information	
OBR.14	26	TS	B	Specimen Received Date/Time *	
OBR.15	300	SPS	B	Specimen Source	
OBR.16	250	XCN	O	Ordering Provider	Components 1 to 3 returned in ORU.
OBR.17	250	XTN	O	Order Callback Phone Number	
OBR.18	60	ST	O	Placer Field 1	
OBR.19	60	ST	O	Placer Field 2	
OBR.20	60	ST	O	Filler Field 1 +	
OBR.21	60	ST	O	Filler Field 2 +	
OBR.22	26	TS	C	Results Rpt/Status Chng - Date/Time +	
OBR.23	40	MOC	O	Charge to Practice +	
OBR.24	10	ID	O	Diagnostic Serv Sect ID	
OBR.25	1	ID	C	Result Status +	
OBX.1	4	SI	O	Set ID – OBX	
OBX.2	2	ID	C	Value Type	ED for embedded document or RP for reference pointer.
OBX.3	250	CE	R	Observation Identifier	ID of procedure
OBX.4	20	ST	C	Observation Sub-ID	
OBX.5	99999[1]	varies	C	Observation Value	UNC path, Base64 encoded PDF or summary measurement (see example messages above).
OBX.6	250	CE	O	Units	

OBX.7	60	ST	O	References Range	
OBX.8	5	IS	O	Abnormal Flags	
OBX.9	5	NM	O	Probability	
OBX.10	2	ID	O	Nature of Abnormal Test	
OBX.11	1	ID	R	Observation Result Status	F for Final (confirmed reports).

EXEMPLOS DE MENSAGENS ORU

As mensagens ORU podem incluir ficheiros PDF embebidos e codificados em base64 dentro dos segmentos OBX. A mensagem abaixo apresenta apenas o início e o final do relatório por motivos de espaço.

```
MSH|^~\&|Sentinel|Cardiology|TestPartner|TestFacility|20060516123228||O
RU^R01|0605161232283|P|2.3.1
PID||001^^^1^EPI|001^^^Midtown Clinic|

|Bloggs1^Jo^R||19341123|M|||111 E Test
Street^^Chicago^IL^61999^USA||(217)463-3220|(217)463-
3220|||||10000351021|331-28-3900
PV1||I||||||00501^Riviera^Nick^^^Dr|85536^Hibbert^Julius^^^Dr|
|||||||||||1234

OBR|1|||11524-0^ECGReport^LN|||20060421100823|||||||||||||||||||R
OBX|1|ED|11524-0^ECG
Report^LN||1.2.826.0.1.921452.1^Application^PDF^Base64^JVBERi0xLjQKJYC…
lZgoxNDg0MzINJSVFT0YK||||||F|
```

A seguinte mensagem ORU contem a referência a um ficheiro PDF em forma de UNC. The following ORU message contains a reference to a PDF report in the form of a UNC path. Se necessário, o serviço de mensagens HL7 pode ser configurado para apagar o relatório após um determinado período de tempo.

```
MSH|^~\&|Sentinel|Cardiology|TestPartner|TestFacility|20060516123228||O
RU^R01|0605161232283|P|2.3.1
PID|||250154_171805^^^Midtown Clinic|

|Bloggs^Joe^^^||19341123|M|||Moray Place^^Edinburgh^EH3 6BT
PV1||I||||||00501^Riviera^Nick^^^Dr|85536^Hibbert^Julius^^^Dr|
|||||||||||1234

OBR|1|||11524-0^ECG Report^LN|||20060421100823|||||||||||||||||||R
OBX|1|RP||||\\TESTMACHINE\Reports\0608141012051\SIMB0002.EXERSUM.pdf^^AP
^PDF||||||F|
```

A mensagem seguinte contêm um conjunto de segmentos OBX com cada semento a incluir um sumário de medições. O conjunto exacto de medições depende da modalidade de teste. São mostrados os valores típicos para um exame de MAPA.

```
MSH|^~\&|Sentinel|Cardiology|TestPartner|TestFacility|20060516123228||ORU^R01|0605161232283|P|2.3.1
PID||001^^^1^EPI|001^^^Midtown Clinic|
|Bloggs1^Jo^R||19341123|M|||111 E Test
Street^^Chicago^IL^61999^USA||(217)463-3220|(217)463-
3220||||10000351021|331-28-3900
PV1||I||||||00501^Riviera^Nick^^^Dr|85536^Hibbert^Julius^^^Dr|
|||||||||1234
OBX|1|NM|Systolic Average Blood Pressure||133|mmHg
OBX|2|NM|Min Systolic Blood Pressure||133|mmHg
OBX|3|NM|Max Systolic Blood Pressure||133|mmHg
OBX|4|NM|Diastolic Average Blood Pressure||86|mmHg
OBX|5|NM|Min Diastolic Blood Pressure||86|mmHg
OBX|6|NM|Max Diastolic Blood Pressure||86|mmHg
```

A mensagem abaixo é uma ORU que é enviada no seguimento de um pedido de exame efectuado e por isso mesmo contem dados que permitem ao HIS relacionar a ORU com a OMG que a originou. The message below is an ORU that is being sent in fulfilment of an order and so contains data that allows the receiving system to correlate this ORU with the order it fulfils.

```
MSH|^~\&|Sentinel|Cardiology|TestPartner|TestFacility|20060516123228||ORU^R01|0605161232283|P|2.3.1
PID|||250154_171805^^^Midtown Clinic|
|Bloggs^Joe^^^||19341123|M||||Moray Place^^Edinburgh^EH3 6BT
PV1||I||POC1^WARD4^BED100^Facility1||||00501^Riviera^Nick^^^Dr
|85536^Hibbert^Julius^^^Dr|||||||||||1234||||||||||||||||||||||||||20060
5151232
OBR|1|A226677^PC|18EFB45B-889E-432e-AC2E-A0F022AFA959|11524-0^LN
|||20060421100823|||||||||P030^SMITH^MARTIN^^^DR|||||||||R
OBX|1|ED|11524-
0^LN||1.2.826.0.1.921452.1^Application^PDF^Base64^JVBERi0xLjQKJYC…lZgox
NDg0MzINJSVFT0YK|||||||F
```