AGREEMENT BETWEEN THE COUNTY OF SAN MATEO AND PHARMACY ONESOURCE, INC.

THIS AGREEMENT, entered into this _____ , by and between the COUNTY OF SAN MATEO, hereinafter called "County," and Pharmacy OneSource, Inc., hereinafter called "POS" or "Contractor";

W I T N E S S E T H:

WHEREAS, pursuant to Government Code, Section 31000, County may contract with independent contractors for the furnishing of such services to or for County or any Department thereof;

WHEREAS, it is necessary and desirable that Contractor be retained for the purpose of clinical decision support for Pharmacy and Infection Prevention.

NOW, THEREFORE, IT IS HEREBY AGREED BY THE PARTIES HERETO AS FOLLOWS:

1. Exhibits and Attachments

The following exhibits and attachments are included hereto and incorporated by reference herein:

Exhibit B—Pharmacy OneSource Three-Year Purchase Agreement
Exhibit C—POS User Agreement
Exhibit D—Sentri7 Technical Details
Attachment H—HIPAA Business Associate requirements

2. Services to be performed by Contractor

In consideration of the payments set forth herein and in Exhibit B, Contractor shall perform services for County in accordance with the terms, conditions and specifications set forth herein and in Exhibits C, D, and any Addendum under Exhibit C.

3. Payments

In consideration of the services provided by Contractor in accordance with all terms, conditions and specifications set forth herein and in Exhibits C, D, and any Addendum under Exhibit C, County shall make payment to Contractor based on the rates and in the manner specified in Exhibit B. In no event shall the County's total fiscal obligation

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under this Agreement exceed ONE HUNDRED SIXTY THOUSAND SIX-HUNDRED DOLLARS ($160,600).

4.   Term and Termination
Subject to compliance with all terms and conditions, the term of this Agreement shall be from June 1, 2013 through May 31, 2016.

Under the terms of this Agreement, County pays Contractor an annual fee for services provided by Contractor for the upcoming year. During the course of this Agreement, County may terminate the Agreement without cause by giving written notice pursuant to Section 13, below, at least ninety (90) days prior to the start of the next annual term. In the event of such termination, Contractor will cease providing services under the Agreement on the last day of the then-current payment term and has no obligation to provide any additional services except those that extend beyond the service term as outlined by this Agreement.

In the event of termination in accordance with the terms of this Agreement, the County shall retain all of its rights to the County's data in accordance with Section 5.2 (Customer Account Information and Data) of Exhibit C.   Upon termination, and per the County's request, the Contractor may provide the County a copy of its data in a mutually agreed upon, industry standard format. Subject to availability of funding, Contractor shall be entitled to receive payment for work/services provided prior to any termination of the Agreement.

5.   Relationship of Parties
Contractor agrees and understands that the work/services performed under this Agreement are performed as an independent Contractor and not as an employee of the County and that Contractor acquires none of the rights, privileges, powers, or advantages of County employees.

6.   Assignability
Contractor shall not assign this Agreement or any portion thereof to a third party under this Agreement without the prior written consent of County, with such consent not to be unreasonably withheld, conditioned or delayed. Any such assignment without the County's prior written consent shall give County the right to automatically and immediately terminate this Agreement. However, back-office services which constitute part of the services provided by Contractor (such as web-hosting), to the extent that County does not have any direct contact with the vendors of such back-office services, may be subcontracted by Contractor without consent of County.

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7. Insurance

The Contractor shall not commence work or be required to commence work under this Agreement unless and until all insurance required under this paragraph , subject to each policy's terms and conditions, has been obtained and such insurance has been approved by County's Risk Management. The Contractor shall furnish the County with certificates of insurance evidencing the required coverage.   Contractor agrees that during the term of this Agreement it shall maintain insurance coverage with coverage at least as broad as that listed by this section, even if Contractor's insurance provider changes during the term of the Agreement. If Contractor's insurance coverage is not maintained at this level and if Contractor is unable to reasonably demonstrate alternative financial responsibility to respond to claims that might arise from this transaction, County shall have the option to terminate this Agreement, and in such event Contractor shall return any amounts paid to Contractor by County for the remainder of the then-current payment period which has not yet elapsed (prorated to the date of termination, with Contractor keeping payment for the portion of the then-current term up to the date of termination).

(1) **Worker's Compensation and Employer's Liability Insurance** The Contractor shall have in effect during the entire life of this Agreement Workers' Compensation and Employer's Liability Insurance providing full statutory coverage. In signing this Agreement, the Contractor certifies, as required by Section 1861 of the California Labor Code, that it is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions of the Code, and will comply with such provisions before commencing the performance of the work of this Agreement.

(2) **Liability Insurance** The Contractor shall take out and maintain during the life of this Agreement such Bodily Injury Liability and Property Damage Liability Insurance as shall protect him/her while performing work covered by this Agreement from claims for damages for bodily injury, as well as claims for property damage which may arise from contractors operations under this Agreement, whether such operations be by himself/herself or by any sub-contractor or by anyone directly or indirectly employed by either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall be not less than the amount specified below.

Such insurance shall include:
(a) Comprehensive General Liability . . . . $1,000,000 per occurrence and $2 million in the aggregate
(b) Motor Vehicle Liability Insurance . . . . $1,000,000 per occurrence

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(c) Professional Liability . . . . $1,000,000 per claim made and $2 million in the aggregate

8.   **Compliance with laws; payment of Permits/Licenses**
All services to be performed by Contractor pursuant to this Agreement shall be performed in accordance with all applicable Federal, State, County, and municipal laws, ordinances and regulations, including, but not limited to, the Health Insurance Portability and Accountability Act of 1996 (HIPAA), and the Federal Regulations promulgated thereunder, as amended, and Contractor will comply with the Business Associate requirements set forth in Attachment "H."   In the event of a conflict between the terms of this Agreement and State, Federal, County, or municipal law or regulations, the requirements of the applicable law will take precedence over the requirements set forth in this Agreement. The parties agree that, pursuant to Section 70713 of Title 22 of the California Code of Regulations ("Title 22"), the County retains all professional and administrative responsibility for services rendered under this Agreement and that this Agreement is otherwise subject to any applicable requirements of Title 22.

9.   **Non-Discrimination and Other Requirements**
A. *General non-discrimination*.   No person shall, on the grounds of race, color, religion, ancestry, gender, age (over 40), national origin, medical condition (cancer), physical or mental disability, sexual orientation, pregnancy, childbirth or related medical condition, marital status, or political affiliation be denied any benefits or subject to discrimination under this Agreement.
B. *Equal employment opportunity.*   Contractor shall ensure equal employment opportunity based on applicable federal law, specifically objective standards of recruitment, classification, selection, promotion, compensation, performance evaluation, and management relations for all employees under this Agreement. Contractor's equal employment policies shall be made available to County of San Mateo upon request.
C. *Violation of Non-discrimination provisions.*   Violation of the non-discrimination provisions of this Agreement shall be considered a breach of this Agreement and subject the Contractor to penalties including but not limited to
   i)   termination of this Agreement; and
   ii)   disqualification of the Contractor from bidding on or being awarded a County contract for a period of up to 3 years.
D. *Compliance with Equal Benefits Ordinance.*   With respect to the provision of employee benefits, Contractor shall comply with the County Ordinance which prohibits contractors from discriminating in the provision of employee benefits between an employee with a domestic partner and an employee with a spouse.
E. The Contractor shall comply fully with the non-discrimination requirements required by 41 CFR 60-741.5(a), which is incorporated herein as if fully set forth.

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10. Retention of Records, Right to Monitor and Audit

Contractor shall maintain the required records to uphold standard, general accounting principles as well as the documents identified in Section 2.h and 2.i of Attachment H for three (3) years after the County makes final payment and all other pending matters are closed. The County, a Federal grantor agency providing funding for this Agreement, and the State of California shall have the right, each at its own expense, to have off-site access to and to review all applicable contract documents, invoices, and purchase orders directly associated with this Agreement, as well as any of the County's Protected Health Information stored by Contractor.

11. Merger Clause

This Agreement, including the Exhibits attached hereto and incorporated herein by reference, constitutes the sole Agreement of the parties hereto and correctly states the rights, duties, and obligations of each party as of this document's date. In the event that any term, condition, provision, requirement or specification set forth in the body of this Agreement conflicts with or is inconsistent with any term, condition, provision, requirement or specification in any exhibit and/or attachment to this agreement, the provisions of the body of the Agreement shall prevail. Any prior agreement, promises, negotiations, or representations between the parties not expressly stated in this document are not binding. All subsequent modifications shall be in writing and signed by the parties.

12. Controlling Law and Venue

The validity of this Agreement and of its terms or provisions, as well as the rights and duties of the parties hereunder, the interpretation, and performance of this Agreement shall be governed by the laws of the State of California.

13. Notices

Any notice, request, demand, or other communication required or permitted hereunder shall be deemed to be properly given when both (1) transmitted via facsimile to the telephone number listed below and (2) either deposited in the United State mail, postage prepaid, or when deposited for overnight delivery with an established overnight courier that provides a tracking number showing confirmation of receipt, for transmittal, charges prepaid, addressed to:

In the case of County, to:
San Mateo Medical Center
222 W. 39th Avenue
San Mateo, CA 94403
Attn: Chief Executive Officer
Facsimile: (650) 573-2950

Any legal notices/service of process for County should additionally be sent to:
Office of County Counsel

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400 County Center, Sixth Floor
Redwood City, CA 94063
Fax: 650/363-4034; Phone: 650/363-4250

In the case of Contractor, to:
Pharmacy One Source, Inc.
Attn: Contract Management
3535 Factoria Blvd. SE, Suite 440
Bellevue, WA 98005
Phone: (800) 654-8395
Fax: (608) 829-7301

Any legal notices/service of process for P1S should additionally be sent to:
Deidra D. Gold, Executive Vice President and General Counsel,
Wolters Kluwer North American Shared Services
2700 Lake Cook Road
Riverwoods, IL 60015
Fax: 847-890-6084; Phone: 847-580-5035
Deidra.Gold@wolterskluwer.com

With a copy to:
Erin M. Sanders, Senior Paralegal
Same address as indicated above for D.Gold.
Fax: 847.890.6082; Phone: 847.580.5045
erin.sanders@wolterskluwer.com

In the event that the facsimile transmission is not possible, notice shall be given both by United States mail and an overnight courier as outlined above.

IN WITNESS WHEREOF, the parties hereto, by their duly authorized representatives, have affixed their hands.

COUNTY OF SAN MATEO

By:_____
President, Board of Supervisors, San Mateo County

Date:_____

ATTEST:

By:_____
Clerk of Said Board

Pharmacy OneSource, Inc.

Leo M. Barbaro
_____
<mark>Contractor's Signature</mark>

Date:__4/29/2013__

Long Form Agreement/Business Associate
SMMC rev. 1/25/11

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EXHIBIT B

PHARMACY ONESOURCE THREE-YEAR PURCHASE AGREEMENT

Pharmacy OneSource, Inc.

Customer Service
3535 Factoria Blvd. SE, Suite 440
Bellevue, WA 98005
Phone: (800) 654-8395
Fax: (608) 829-7301

Purchase Proposal Date:	4/10/2013
Customer #:	
Subscription Term Start Date:	Monday, June 03, 2013
POS Director of Sales:	Jacki Davis
Office Phone:	800-654-8395 ext 140
VP of Sales	Hal Mady
Office Phone:	800-654-8395 Ext. 171

CUSTOMER INFORMATION

Organization:	San Mateo Medical Center	Contact Name:	Gary Horne
Institution:		Title:	Director of Pharmacy
Street:	222 West 39th Ave	Phone:	
City/State:	San Mateo, CA	Fax:	
ZIP:	94403	E-Mail:	

EXHIBIT B – SUBSCRIPTION SERVICES - PHARMACY ONESOURCE LICENSE FEES

Product Description	Annual Price First Year	# Facilities		DISCOUNT		Net Ext. Price/Annually
Sentri7 Pharmacy and Infection Prevention Module. Clinical Documentation and NHSN Reporting included.	$53,360.00	1		25%		$ 40,020.00

First Year Subscription Fee:	$ 40,020.00
Implementation Fee/Interface Fee (ADT, Lab, Pharmacy, Radiology, Surgery, Vitals, OR Scheduling Feed and Real-Time Antibiogram):	$ 26,250.00
First Year Total:	**$ 66,270.00**
Second Year Amount:	$ 40,020.00
Third Year Amount:	$ 40,020.00
Total Amount for Three-year Agreement:	$ 146,310.00

PHARMACY ONESOURCE PAYMENT SUMMARY

1.) Payments must be made in US Dollars.

2.) The Three-Year Agreement total covers **36 months** of Pharmacy OneSource service fees from the subscription term start date.

3.) Payment Terms are Net 30 days.

4.) Agreement is subject to the Agreement between the County of San Mateo and Pharmacy OneSource, including the Pharmacy OneSource User Agreement.

5.) Customer will be invoiced for the first year of service immediately upon receipt of signed agreement. Years 2 and 3 will be automatically
 invoiced two months before each year's subscription date.

2013 Purchase Proposal Pricing expires July 31, 2013.

BILLING INFORMATION

Billing Address		**Wholesaler Billing Information**	
Institution:		Wholesaler Name:	
Street:		Wholesaler Number:	
City/State:			
Zip Code:			
Contact Name:		**or**	
Title:			
Phone:			
Fax:		Purchase Order Number:	
E-Mail:		(Attach copy with faxed Purchase Agreement)	

SIGNATURE SECTION - COMPLETE AND FAX TO 608.829.7301

Accepted by Signature	Date	Accepted by Signature	Date
Hospital Name		**Pharmacy OneSource Inc.**	
Print Name		**Print Name** Tim Gibbons, President and COO	

This agreement contains information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended addressee, nor authorized to receive for the intended addressee, you are hereby notified that you may not use, copy, disclose or distribute to anyone the information contained in this agreement.

**Exhibit C – PHARMACY ONESOURCE
USER AGREEMENT**

This Pharmacy OneSource User Agreement, Exhibit C to the Agreement ("Exhibit C") is incorporated into the "Agreement between the County of San Mateo and Pharmacy OneSource, Inc." dated April 29, 2013 (the "Agreement"). The parties agree as follows:

1. Preamble. POS offers an online service that provides the Customer with access to various tools and products designed to assist pharmacy professionals located in institutional care facilities called SENTRI7: HL7, a HIPAA compliant, rules-based search, notification and practice standardization software that utilizes integrated hospital and patient data (the "Service").

2. Modules; User Accounts and Support.

2.1 Right to Use Service. Subject to the terms and conditions contained herein, during the term of this Agreement, the Customer shall have a non-exclusive, non-transferable, limited right to use the Service, including, accessing the visual information, documents, products and software contained in or made available through the Service (the "Content"), solely for its internal business purposes and for no other purposes. The Service may only be used by selected users of the Customer as provided below. The Customer will only have access to the modules within the Service that it elects to subscribe for on the date hereof as provided on Exhibit B or in an Addendum as contemplated by Section 2.3 below.

2.2 User Accounts. A user account is required to access the Service and may be accessed and used only by those authorized individuals who are registered with POS. In registering for the Service, Customer shall submit accurate, current and complete information about each person who will be a permitted user. Should POS suspect that such information is untrue, inaccurate, not current or incomplete, POS has the right to suspend or terminate the Customer's (and each of its users') use of the Service. User accounts cannot be "shared" or used by more than one individual. Individual user rights can be transferred to a new user only if a previous user becomes inactive and is unable to access the Service.

2.3 Modules. The Service will only include the modules you elect to subscribe for as set forth on Exhibit B, provided that you shall have the right to select additional modules after the date hereof by executing and delivering to POS an addendum to this Agreement (an "Addendum"). Each Addendum to this Agreement shall set forth the additional module being selected and the price and other terms of its use, as mutually agreed upon by you and POS. Any Addendum executed and delivered after the date of this Agreement shall become a part of this Agreement, and if any terms of an Addendum are inconsistent with the terms of this Agreement, the terms of such Addendum shall take precedent only with respect to the modules set forth thereon and only if they explicitly state that they control over a specific section of the Agreement with which they conflict.

2.4 Specifications; Support. The Service will consist of the modules you select to use. Each module shall have the functionality described for it on Exhibit D or an Addendum. Customer understands that the interface requirements described and shown in Exhibit D indicate Customer requirements that must be met for certain types of Service functionalities. POS reserves the right to make changes to any module of the Service that it deems necessary or useful. POS will notify the Customer in writing of any substantial or material changes. At the time of the signing of this Agreement, POS does not anticipate such changes will reduce or negatively impact the functionalities of the Service; however, POS will notify Customer in writing during the Term if such changes occur. If POS imposes substantial or material changes that will reduce or negatively impact the functionalities of the Service, Customer shall have the option either (a) to terminate the Agreement with a refund of amounts paid prorated from the date of termination to the end of the then-current term as outlined by the second paragraph of Section 4 of the Agreement or (b) to negotiate with POS to amend the pricing or other terms to take into account such reduced or negatively impacted functionalities. POS also reserves the right to introduce new products that are not part of the Service. POS will provide telephone and online support to Customer during normal business hours, Monday through Friday.

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2.5 Reservation of Rights. All rights not expressly granted by POS to the Customer to use the Service are reserved to POS. Customer shall not have the right to modify, translate, reverse engineer, disassemble, decompile or create derivative works of any of the POS Proprietary Rights (as defined in Section 5.1). The Customer shall not have the right to (i) license, sublicense, sell, resell, transfer, assign, distribute or otherwise commercially exploit or make available to any third party the Content contained in or made available through the Service in any way; (ii) "frame" or "mirror" any Content from the Service on any server or wireless or internet based device; (iii), except with respect to your Data (as defined below) modify, copy, distribute, publish, publicly display, transmit or download for storage on a hard drive or any other storage media any Content obtained through the Service.

3. Fees. Customer shall pay to POS the fees (the 'Service Fee") and costs in the amounts and at the times specified on Exhibit B or in an Addendum. Customer shall be solely responsible for payment of any and all taxes (excluding taxes on the income of POS) assessed on the transactions contemplated by the Agreement. POS will invoice you at the beginning of every new subscription period. Customer will make reasonable attempts to pay all POS invoices within 30 days from the date of invoice. However, Customer will not be charged interest fees as indicated in this Section 3 Fees, regardless of any statement to the contrary in Exhibit B or in any Addendum, until sixty (60) days after the date of the POS invoice. After this 60 day period, Customer will be charged simple interest of 1.0% per month (an equivalent of 12.0% per year) on any portions of balances that are past due. For purposes of this section, "past due" means any amount that is not paid within sixty (60) days of the first time it is included on an invoice to Customer, and "simple interest" means that a 1.0% charge will appear on the next statement for any past due balance for that month, but interest shall not be compounded on past-due interest).

4. Terms of Use.

4.1 Customer Duties. The Customer agrees to and acknowledges the following regarding its use of the Service: (i) Customer is fully responsible for all of its users' activities that occur under its account; (ii) Customer is responsible for maintaining the confidentiality of its user's passwords and usernames; (iii) Customer shall immediately notify POS of any unauthorized use of your account or any other breach of security that is known or suspected by you; (iv) Customer shall not transmit, publish, or disclose any Content (other than your Data) derived from the Service to any third party who is not an employee of the Customer; (v) Customer shall not use the Service or any Content derived there from in any manner that violates any applicable law; and (vi) Customer shall not violate or attempt to violate or circumvent any security procedures of the Service. Customer understands and acknowledges that the interpretation of the Content derived from the Service involves the consideration by qualified healthcare professionals of an indescribable number of dynamic factors and accordingly there is no substitute for competent human intervention and discretionary thinking. Therefore, Customer and each user shall use the highest degree of care when using the results and Content of the Service, and to analyze such results in light of all of the other available information before relying on such results and Content. Customer understands and acknowledges that the POS and its licensors shall not be responsible for any losses, injuries, damages or other consequences to you or your patients or customers directly or indirectly caused by or resulting from the breach of the foregoing terms of use.

4.2 Intentionally deleted.

5. Proprietary Rights.

5.1 POS Proprietary Rights. POS (and its licensors, where applicable) owns or controls and retains all right, title and interest in and to its intellectual property, including the design, look, feel, features, source code, Content and other technology making up the Service, and all patents, inventions, trademarks, and copyrights, any applications therefore, and trade names, service marks, know how and trade secrets relating to the Service (the "POS Proprietary Rights"). POS is not transferring any title, ownership interest or other rights in POS Proprietary Rights, and Customer agrees it shall not assert any right, title or interest in or to POS Proprietary Rights or derivative works thereof. POS alone will own all right, title and interest, including all related intellectual property rights, to any suggestions, ideas, feedback, recommendations, or other information provided by you relating to the Service ("Submissions") and you hereby assign such Submissions to POS. POS may use such Submissions

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as it deems appropriate in its sole discretion.

5.2 Customer Account Information and Data. Customer shall own all right, title and interest to any data, information or material that you submit to the Service, including any rules created by Customer relating to its patients and patient data ("Data"), and POS shall have no rights thereto unless we specifically notify you otherwise before you submit it. POS will not monitor, edit, or disclose any information regarding you or your account, including any Data, without your prior permission except in accordance with this Agreement or as may be required by law. POS may access your account, including its Data, to respond to service or technical problems or as stated in this Agreement.

5.3 Right of Referral. With prior written consent of Customer in relation to each proposed use as outlined by this Section, POS shall have the right to refer to Customer as a customer of POS in its press releases, advertising and promotional materials, and to use Customer's logo and branding to identify Customer therein. POS shall submit to Customer a copy of all advertising and promotional materials containing Customer's identity and logo prior to their first use for Customer's approval, in Customer's sole and absolute discretion.

6. Intentionally deleted.

7. Warranty; Disclaimer Of Warranties And Related Matters

7.1 Warranty. POS warrants that the modules constituting the Service will have the features and functionality set forth in Exhibit B, Exhibit D, or an Addendum under normal use and circumstances. POS's sole obligation to Customer for a breach of the foregoing warranties shall be to use commercially reasonable efforts to promptly repair such errors as quickly as possible. If a breach of this warranty substantially interferes with the Customer's use of the Service, POS's sole obligation to Customer shall be to take one of the following actions, at the discretion of County: (i) extend the term of this Agreement for the length of the effected period at no additional cost or expense to Customer, (ii) terminate the subscription for the affected module and refund a portion of the Service Fee relating to the effected period and the unexpired Term, or (iii) terminate the entire Agreement, and refund a portion of the Service Fee relating to the effected period and the unexpired Term. As used in this Section, the Service shall be deemed to have been substantially interfered with if more than 10% of the features and functionality of a given module are unavailable for 7 days.

7.2 No Infringement. POS warrants that the Service does not infringe, violate, trespasses or constitutes the unauthorized use or misappropriation of any intellectual property rights or Proprietary Rights (as defined in Section 5.1, above) of any third party. POS shall defend, indemnify and hold you harmless from and against all liabilities, costs, damages, losses and expenses (including reasonable attorney fees) arising out of or related to any claim by a third party that the Service infringes or violates any copyright, patent, trademark, trade secret or other third party proprietary right of a third party, provided any such right is enforceable in the United States, provided that:
(a) Customer notifies POS promptly in writing of any notice of any such claim;
(b) Customer cooperates with POS, at POS's expense, in all reasonable respects in connection with the investigation and defense of any such claim;
(c) POS will have sole control of the defense of any action on any such claim and all negotiations for its settlement or compromise, provided POS shall not have the right to settle any **_criminal_** action, suit or proceeding without Customer's prior written consent, not to be unreasonably withheld, and provided further that any settlement permitted hereunder shall not impose any financial or other obligation on Customer, impair any right of Customer, or contain any stipulation, admission or acknowledgement of wrongdoing on the part of Customer without Customer's prior written consent, not to be unreasonably withheld; and
(d) should the Service become, or in POS's opinion be likely to become, the subject of such a claim, or in the event such a third party claim or threatened claim causes Licensee's reasonable use of the Service to be seriously endangered or disrupted, POS shall, at POS's option and expense, either:
     (i) procure for Customer the right to continue using the Service, or
     (ii) or replace or modify the same so that it becomes non-infringing, but remains functionally equivalent.

Notwithstanding anything herein to the contrary, POS will have no obligation or liability to Customer under this section to the extent any otherwise covered claim is based upon:
(a) use of the Service in a manner that conflicts with the prescribed uses in the applicable POS user documentation;

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(b) any Service which has been modified by or for Customer (other than modification performed by, or at the direction of, POS) in such a way as to cause it to become infringing;

(c) Customer's failure to implement any update delivered by POS to Customer that is designed to avoid such claim after being notified that implementation of the update is necessary to avoid an alleged infringement; or

(d) use of the Service in conjunction with systems, products or components not furnished by POS. This section states POS's exclusive liability for infringement or other violation of the intellectual property rights of any third party by the Service and are Customer's sole remedy in the event of a claim of infringement.

7.3 Disclaimer of Warranties; Warnings.

(a) Information AS IS. You expressly acknowledge and agree that use of the Service and the Content contained therein or the sites accessed thru the Service, if any, are at your sole risk (except for a breach of POS's warranties contained herein) and the Content is provided "AS IS" and NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE WHATSOEVER IS MADE WITH RESPECT THERETO.

(b) Intentionally deleted.

(c) WARNING. The Service utilizes and accesses databases compiled by doctors, medical researches, and other healthcare professionals. The information contained herein and therein is intended only as a supplement to the knowledge and judgment of physicians, pharmacists and other healthcare professionals. Users should consult all available sources before making decisions regarding patient care. Any drug dosage and concentration amounts calculated by the Service is advisory only and is not intended to replace FDA approved labeling information, or sound clinical judgment.

(d) No Implied Warranties. Other than expressly provided for above, POS AND ITS LICENSORS MAKE NO REPRESENTATION, WARRANTY, OR GUARANTY AS TO THE RELIABILITY, TIMELINESS, QUALITY, SUITABILITY, TRUTH, AVAILABILITY, ACCURACY OR COMPLETENESS OF THE SERVICE OR THE FORMULAS OR CONTENT UTILIZED THEREBY. POS AND ITS LICENSORS DISCLAIM ALL CONDITIONS, REPRESENTATIONS, AND WARRANTIES, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW.

(e) Internet Disclaimer. The Service is being delivered over the Internet, and accordingly, is subject to limitations, delays, and other problems inherent in the use of the Internet and electronic communications. POS is not responsible for any Internet-related delays, delivery failures, viruses, hacker intrusions or other damages resulting from such problems. POS and its licensors do not represent or warrant that (A) the use of the service will be secure, uninterrupted or error free, or (B) the POS servers that make the services available are free of viruses or other harmful components. POS uses industry standard techniques and procedures to attempt to prevent and detect viruses or other inappropriate or unauthorized access to and us of the POS server platform.

7.4 Aggregate Liability. In no event shall POS'S and its licensors aggregate liability exceed the amount actually paid by County pursuant to the Agreement during the initial 3 year Term. In no event shall POS or its licensors be liable to anyone for any indirect, punitive, special, exemplary, incidental, consequential or other damages of any type or kind (including loss of data, revenue, profits, use or other economic advantage) arising out of, or in any way connected with this Service, including, but not limited to your use of inability to use the Service, or for any Content obtained from or through the Service, even if POS has been previously advised of the possibility of such damages. However, this Section does not apply to POS's indemnification under Section 7.2 (No Infringement), above.

7.5 Time for Commencement of Action. No action against POS or any of its directors, officers, employees, agents or licensors, regardless of form (including negligence), arising out of any claimed breach of this Agreement or transactions under this Agreement or in any other way related to this Agreement may be brought by the other party more than two years after the cause of action has arisen.

7.6 Intentionally deleted.

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7.7 Additional Rights: Certain states and/or jurisdictions do not allow the exclusion of implied warranties or limitation of liability for incidental or consequential damages, so the exclusions set forth above may not apply to you.

8. Term and Termination.
(a) The term of this Agreement shall begin on the date indicated in the first paragraph of Section 4 (Term and Termination) of the Agreement and, unless terminated in accordance with the terms and conditions of the Agreement, shall continue for a period of three years. The term will renew for additional periods upon a signed writing between the parties.
(b) POS reserves the right to suspend or terminate this Agreement and your access to the Service if your account becomes delinquent or if you are in material breach of your obligation under this Agreement, provided that POS must first provide County with 60 days prior notice in writing of its intent to suspend or terminate the Agreement, and allow County the opportunity to cure the delinquency. Customer may terminate this Agreement as provided in Section 7.1, above, and as provided by Section 4 (Term and Termination) of the Agreement. Upon termination or expiration of the Term of this Agreement, and in addition to any provision that expressly provides to survive any termination of this Agreement, the provisions of Sections 4.3 and 5of this Exhibit shall continue and survive in full force and effect.

9. General Provisions.

9.1 Binding Agreement. This Agreement shall be binding upon and inure to the benefit of the parties, and their respective successors and permitted assigns. Refer to Section 6 (Assignability) of the Agreement regarding assignment.

9.2 Severability. Any provision of this Agreement held or determined by a court (or other legal authority) of competent jurisdiction to be illegal, invalid, or unenforceable in any jurisdiction shall be deemed separate, distinct and independent, and shall be ineffective to the extent of such holding or determination without (i) invalidating the remaining provisions of this Agreement in that jurisdiction or (ii) affecting the legality, validity or enforceability of such provision in any other jurisdiction.

9.3 Notices. Except in relation to notices discussed in Sections 4 (Term and Termination) and 13 (Notices) of the Agreement and Section 8(b) of this Exhibit, the parties may provide notice as outlined by this Section. POS may give notice by means of electronic mail to the e-mail address on record with POS's account information, or by written communication sent by first class mail to your address on record in POS's account information. You may give notice to POS (such notice shall be deemed given when received by Pharmacy OneSource, Inc.) at any time by any of the following: an email to pharmacist@Pharmacy OneSource.com; a letter sent by confirmed facsimile to Pharmacy OneSource, Inc. at the following fax number: (425) 452-5649; or a letter delivered by nationally recognized overnight delivery service or first class postage prepaid mail to Pharmacy OneSource, Inc. at the following address: Pharmacy OneSource, Inc., 3535 Factoria Blvd. SE, Suite 440, Bellevue, WA 98006.

9.4 No Waiver. Any failure by either party to detect, protest, or remedy any breach of this Agreement shall not constitute a waiver or impairment of any such term or condition, or the right of such party at any time to avail itself of such remedies as it may have for any breach or breaches of such term or condition. A waiver may only occur pursuant to the prior written express permission of an authorized officer of the other party.

9.5 Cookies: Cookies are files that your web browser places on your computer's hard drive and are used to tell us whether you have visited the Service previously. POS uses a persistent cookie to help save and retrieve usernames used on the Service. POS issues a session cookie only to record encrypted authentication information for the duration of a specific session. The session cookie does not include the username or password of the user.

9.6 Intentionally deleted.

9.7 Intentionally deleted.

AMR-V5-4/29/13-FINAL

EXHIBIT D

Sentri7 Technical Details

Sentri7 is deployed as a Software-as-a-Service (SaaS) model. This secure, web-based solution requires no additional hardware or software to be installed at your organization. End-users access Sentri7 via secure SSL connections using a standard web browser and Internet access. HL7 messages carried over point-to-point IPSec VPN connections with Sentri7 safely transfer your organization's data. All data is stored and processed on Sentri7's redundant, load-balanced servers within SAS 70 Type II-compliant and SysTrust Certified datacenters.

Requirements

End-User Requirements

- Internet Access for Clinicians Using Sentri7
  - Clinician workstations need to have HTTPS (128 bit SSL, TCP/IP port 443) to the Sentri7 servers. We can provide the static IP address of the application if required by your network configuration.
- Approved Web Browser for Clinicians Using Sentri7
  - Clinician workstations need to have at a minimum Microsoft Internet Explorer 7 or FireFox 5 to access Sentri7.

Back-End Requirements

- HIPAA Business Associate Agreement (BAA)
  - This is a legal document between your facility and Sentri7 assuring you of the safety of your HIPAA data with Sentri7.
- Virtual Private Network (VPN) Connection(s)
  - This is a secure point-to-point IPSec connection between the data network(s) at your facility and Sentri7's datacenters. Your facility provides the hardware and configuration for your half of the VPN connection.
- HL7 Feeds
  - Sentri7 will receive HL7 messages from your facility over a point-to-point IPSec VPN connection.
  - Please refer to the Sentri7 Feed Specifications to review the feeds that we accept, the required message formatting and field values.
  - Many facilities already have interface engines (Cloverleaf, Openlink, eGate, etc) in place and existing interfaces between their system(s) and an interface engine. Being able to redirect feeds to Sentri7 and make changes in your interface engine can speed up the implementation process if the feeds adhere to our required specifications.

System Overview

The following diagram illustrates how each component of Sentri7 comes together to create our clinical surveillance and reporting software.
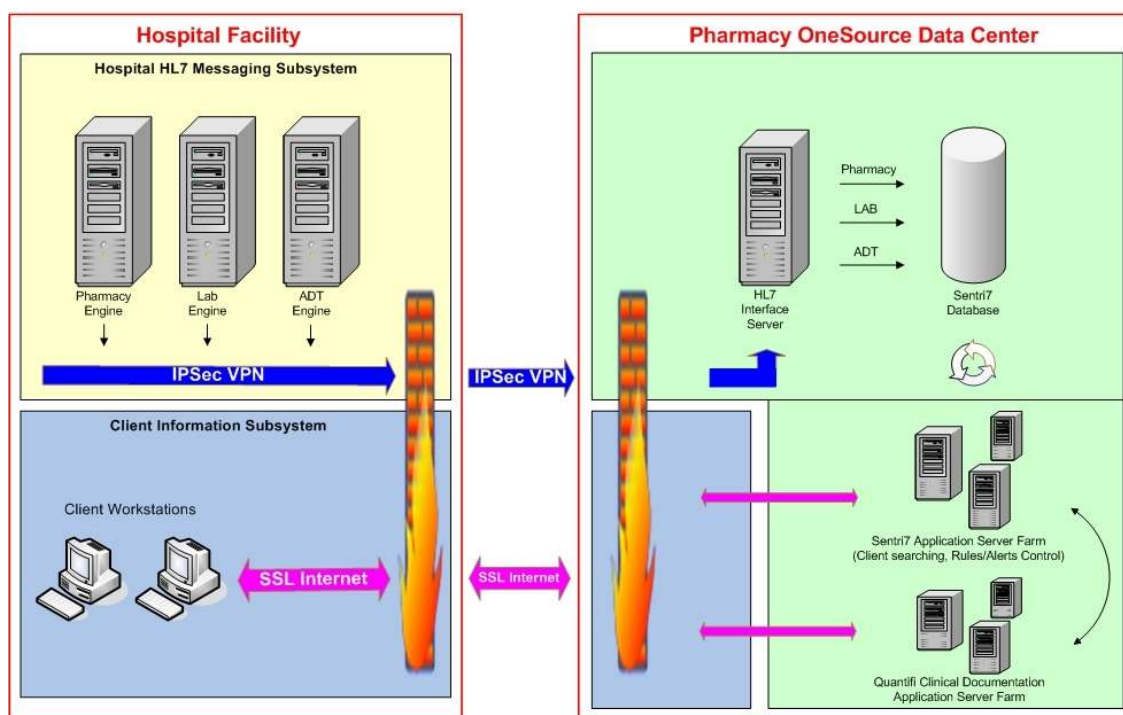
Data Center Details

Hosting

CDW/Berbee Information Networks Corporation is Sentri7's official data storage provider. CDW/Berbee has two world-class data centers built on redundant, Cisco-powered infrastructure. They have achieved both a SAS 70 Type II Audit and a SysTrust Certification. Successful completion of the SAS 70 Type II/SysTrust audit provides clear confirmation of the reliability, security, availability,

and processing integrity of services provided through their data centers in Fitchburg, Wisconsin and Minneapolis, Minnesota.

The CDW/Berbee Network Operations Center (NOC) provides 24x7x365 telephone and onsite coverage for both Berbee data centers. This manned NOC provides us the support in triaging, status notification, troubleshooting, escalating, and tracking any issues that occur in the Sentri7 production environments.

Co-location

Located in Fitchburg, WI and Minneapolis, MN, CDW/Berbee's two enterprise data centers have a combined 24,000 square feet of SONET-connected space. Their multiple Tier 1 Internet providers give them a combined 777 Mbps of bandwidth, ensuring that they are "always on". They have extensive physical and network security such as a biometric hand scanner for entrance to the facility, digital video surveillance, core network, as well as host-based, intrusion detection, and continuous system and network monitoring. CDW/Berbee also has comprehensive environmental controls, dedicated connectivity, and power redundancy.

Security Policies

Only approved data center staff and select Sentri7 system analysts have physical access to Sentri7 equipment. Authorized personnel may only access the data center floor while accompanied by a CDW/Berbee representative. Access to the data center requires biometric authentication. Access to the racks requires a key card and pass code authentication.

 All of our application servers reside behind redundant Cisco firewalls. All data transmitted between Sentri7 and the client will traverse the Internet in an encrypted fashion, by either SSL web connections or IPSec VPN connections (typically encrypted with 3DES or AES). HTTPS traffic flows over port 443 (SSL). A mutually agreed upon port number will be used for VPN traffic.

An IPSec VPN is required to carry your HL7 messages. We do not initiate connections from our side of the VPN. We will reply with ACKs to all HL7 messages sent over the connection initiated from your end.

Implementation Process

If the client has the appropriate resources allocated, a Sentri7 implementation project takes 12-16 weeks on average. Proper planning and resource allocation prior to the project start assists in making these timelines feasible.

Pre-Implementation

In order to begin your implementation, you must have the following items in place. The earlier that these items are in place, the sooner Sentri7 resources can be scheduled and implementation can begin. You may even begin some of these items during the sales process:

- VPN connection with Sentri7
- Existing feeds meet Sentri7 specifications
    - Please ask your salesperson for a detailed technical assessment if you have questions about your existing feeds
- Allocate resources
    - Core Project Team
        - Pharmacy
        - Infection Prevention
        - Interface Analyst/Engineer
        - Project champion
        - Project Manager (additional resource outside of above roles)
    - As needed and testing resources
        - VPN/network engineer
        - Lab (chemistry and microbiology if different resources)
        - Admissions (if other resources cannot enter patients for testing)
        - Radiology (if radiology-related data needs to be manually entered for testing)
        - Surgery (if surgical-related data needs to be manually entered for testing)

Resource Responsibilities

- Core Project Team
    - Pharmacy Lead and/or Infection Prevention Lead (depending on modules purchased): Pharmacist or Infection Preventionist with the ability to determine project scope and timelines
        - During Implementation
            - Assists with build, testing, and training for pharmacy users
            - Reviews and validates clinical information
        - Post-Live
            - Build out reports for targeted ROI initiatives (Pharmacy Lead)
            - Continued validation of reports for NHSN (Infection Prevention Lead)
            - Identify individuals in need of additional training and provide or request training

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- Prioritize and build additional lists and documentation
  - o Interface Analyst/Engineer: Analyst/engineer with the ability to make or request changes to interfaces as needed
    - During Implementation:
      - Review specification documents to verify that interfaces are sending across required information for identified clinical initiatives
      - Work with Sentri7 to configure and validate feeds
      - Update/edit/configure feeds as appropriate
    - Post-Live:
      - Review specifications for additional clinical initiatives as appropriate
      - Update/edit/configure feeds as changes to other systems are made or if needed for new clinical initiatives
  - o Project Manager: May also be the pharmacy lead and/or infection prevention lead
    - During Implementation:
      - Main point of contact for Sentri7
      - Reviews and provides updates on project plan and manages customer resources
    - Post-Live:
      - Main point of contact for Sentri7
      - Communicate additional training needs
      - Provide feedback on feature requests from staff
      - Discuss optimization opportunities
      - Communicate with other resources to identify any changes
  - o Project champion/Executive Sponsor: Executive at the facility with a vested interest in the success of the project who can assure proper resources are available
- As Needed/Testing Resources
  - o VPN Analyst: Work with Sentri7 VPN Analyst on VPN connection
  - o Lab/Admissions/Radiology/Surgery Resources: If necessary to assist with data review or validation, may be needed during testing phase to populate test data
    - During Implementation:
      - Validate appearance and accuracy of data
    - Post-Live:
      - Inform Project Manager of any changes to their systems to verify that appropriate changes are made to Quantifi and Sentri7

Sample Project Plan

If you would like to receive a customized, sample project plan, please contact your salesperson.

Interface Requirements

Sentri7 & Quantifi

All requirements are subject to change.

Contents

ADT

General Requirements	
AL1 & IAM Segments - Allergy Information	**Importance Level of Data by Field**

AL1 & IAM Segments - Allergy Information
- At least one AL1 or IAM segment is **REQUIRED** in any A60 message (Allergy Updates), otherwise it is **VITAL**, failure to include it when available will result in incomplete information on the patient card.
- Each AL1 or IAM segment should contain one and only one Allergy.
- AL1 and IAM segments are acceptable in any ADT message, but are typically included in A01, A04, and A08 event types.
- If multiple allergies exist for a patient, each message that includes updates to this data must include a separate segment for each allergy

DG1 & PV2 Segments – Diagnosis
- Diagnosis information is **VITAL**, failure to include it when available will result in incomplete information on the patient card.
- Each DG1 or PV2 segment should contain one and only one Diagnosis.
- DG1 and PV2 segments are acceptable in any ADT message, but are typically included in A01, A04 and A08 event types.
- If multiple diagnoses exist for a patient, each message that includes updates to this data must include a separate segment for each diganosis

Importance Level of Data by Field
- **REQUIRED** - If the data element is missing or invalid, P1S will accept the message but the data it contains will not be saved to the Sentri7 database. *(Examples: MessageTimeStamp; EventType; MRN)*
- **VITAL** - If the data element is missing or invalid, P1S will accept the message and the data it contains will be saved to the Sentri7 database, but Sentri7 functionality will be diminished. *(Examples: Name; PatientClass; PointOfCare)*
- **RECOMMENDED** - If the data element is missing or invalid there will be no diminished functionality within Sentri7, however, the missing data may impact P1S' ability to support and troubleshoot application issues. *(Examples: MessageID; MessageSequence)*
- **OPTIONAL** - This data is optional and has no impact on Sentri7 functionality. *(Example: SSN)*

Merge Messages
- Currently only MRN level merges occur in Sentri7.

ADT Feed						
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ADT_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
MSH Segment				MSH is a REQUIRED segment. If it is not included, the message will not be processed.			
Field Separator	MSH.1		N/A	**REQUIRED**	char(1)		Usually | (HL7 Standard). Key to interpreting the HL7 Message and must be the main delimiter used in the message
Encoding Characters	MSH.2		N/A	**REQUIRED**	char(4)		Usually ^~\& (HL7 Standard). Key to interpreting the HL7 Message and must be the encoding characters used in the message
Facility Identifier	MSH.4.1		FacilityID	**REQUIRED**	varchar		Value in the HL7 message is not written to the database, but this value is used to verify that the message is for the correct facility. Multiple identifiers can be used, but they must be a postive identifier across all message types.
Message Sent Date/Time	MSH.7		MessageTimeStamp	**REQUIRED**	YYYYMMDDHHMMSS		Used in MPS decision making, NULL or invalid data will prevent the message from being processed
HL7 Event Type - Message Code	MSH.9.1		N/A	**REQUIRED**	varchar(3)		We don't capture this field, but use the value to determine which logic to apply to the message
HL7 Event Type - Trigger Event	MSH.9.2		Event Type	**REQUIRED**	varchar(3)		The following Event Types are allowed by default, others can be added if needed: A01,A02,A03,A04,A06,A07,A08,A09,A10,A11,A12,A13,A17,A21,A23,A27,A29,A30, A31,A32,A34,A36,A38,A40,A43,A44,A47,A49,A53,A60
Message Control ID	MSH.10		MessageID	**RECOMMENDED**	varchar		Message Control ID is not used by the Sentri7 application; however, it is helpful to P1S analysts and support personnel during troubleshooting.
Message Sequence	MSH.13		MessageSequence	**RECOMMENDED**	real		Message Sequence is not used by the Sentri7 application; however, it is helpful to P1S analysts and support personnel during troubleshooting.
PID Segment				PID is a REQUIRED segment. If it is not included, the message will not be processed.			
Patient MRN	PID.3.1	PID.2.1	MedRecNo	**REQUIRED**	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
Patient Last Name	PID.5.1		LastName	**VITAL**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient First Name	PID.5.2		FirstName	**VITAL**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Middle Name	PID.5.3		MiddleName	**RECOMMENDED**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Suffix	PID.5.4		LastName	**RECOMMENDED**	varchar		If a Patient Suffix is provided, it will be appended to the Last Name. NULL or invalid data will affect the patient card and rule writing
Patient Birth Date	PID.7.1		BirthDate	**REQUIRED if P1S** to calculate Creatinine Clearance and rule writing for age related rules Else **VITAL**	datetime	Yes	NULL or invalid data will affect the patient card and rule writing Creatinine Clearance can't be calculated without BirthDate Age will not be calculated without BirthDate

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ADT Feed							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ADT_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Patient Gender	PID.8		Gender	**REQUIRED** if P1S to calculate Creatinine Clearance and rule writing for gender related rules Else **VITAL**	char(1)	Yes	NULL or invalid data will affect the patient card and rule writing Creatinine Clearance can't be calculated without Gender
Patient Account Number	PID.18.1		AccountNo	**REQUIRED**	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
SSN Number	PID.19.1		SSN	**REQUIRED** in Pennsylvania, othewise **OPTIONAL**	varchar		If not included, SSN will be blank on some reports which show it
PV1 Segment		PV1 is a VITAL segment for ADT messages. If it is not included, Sentri7 functionality will be diminished.					
Patient Class	PV1.2		PatientClass	**VITAL**	varchar(1)		While not shown in the Sentri7 application, Patient Class is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data will be treated as INPATIENT for the purposes of purge count. HL7 Standard: E - Emergency I - Inpatient O - Outpatient P - Preadmit R - Recurring patient B - Obstetrics C - Commercial Account N - Not Applicable U - Unknown
Patient Nursing Unit	PV1.3.1		PointOfCare	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, service area filter, and the dashboard
Patient Room	PV1.3.2		Room	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Patient Bed	PV1.3.3		N/A	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Hospital Service	PV1.10		Service	**VITAL**	varchar	Yes	NULL or invalid data will affect the service area on the patient card, rules, and the dashboard, as well as affect functionality of the service area filter.
Patient Type	PV1.18		PatientType	**VITAL**			While not shown in the Sentri7 application, Patient Type is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data could result with the patient being treated as INPATIENT for the purposes of purge count.
Patient Admit Date/Time	PV1.44.1		AdmitDate	**REQUIRED**	YYYYMMDDHHMMSS	Yes	We do not accept messages for pre-admit patients. Messages with NULL or future admit dates will not be processed.
Patient Discharge Date/Time	PV1.45.1		DischargeDate	**REQUIRED**	YYYYMMDDHHMMSS		REQUIRED if the patient has been discharged. A08 and A31 messages which include a discharge date will be ignored.
OBX Segment		OBX is a VITAL segment for ADT messages. If it is not included, Sentri7 functionality will be diminished. Repeatable					
Patient Weight	OBX.5		Weight	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	float	Yes	Can be sent as GM, OZ, KG, or LBS. (Single unit per message; we cannot accept "145 lbs 8 oz".) P1S will convert and output in the desired format.
Patient Weight Units	OBX.6		WeightUnit	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	varchar		Used to indicate which unit of measure was used for weight. Must be included so P1S is able to validate and convert the patient weight.
Patient Height	OBX.5		Height	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	float	Yes	Can be sent as M, CM, MM, or IN. (Single unit per message; we cannot accept "5 ft 11 in".) P1S will convert and output in the desired format.
Patient Height Units	OBX.6		HeightUnit	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	varchar		Used to indicate which unit of measure was used for height. Must be included so P1S is able to validate and convert the patient height.

ADT Feed							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ADT_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Weight Identifier	OBX.3.1	OBX.3.2; OBX.3.4	N/A	**REQUIRED** if sending weight	varchar		Not captured, but used to identify which OBX segment contains the patient's weight.
Height Identifier	OBX.3.1	OBX.3.2; OBX.3.4	N/A	**REQUIRED** if sending height	varchar		Not captured, but used to identify which OBX segment contains the patient's height.
MRG Segment	MRG is a REQUIRED segment for ADT MERGE messages (Typically A34 & A40 Event Types). If it is not included, the message will not be processed.						
Merge Patient Number	MRG.1		MergePatient_No	**REQUIRED** for Merge messages	varchar(15)		Must be less than 16 characters. If NULL for a Merge Trigger Event; the message will not be processed.
AL1 Segment	See General Requirements. Repeatable						
Patient Allergies - Description	AL1.3.2		Allergies / Detail_Value	**VITAL**	varchar	Yes	Can have multiple segments, but one allergy per segment. ALL patient allergies must be sent in every message that includes this segment(s)
IAM Segment	See General Requirements. Repeatable						
Patient Allergies - Description	IAM.3.2		Allergies / Detail_Value	**VITAL**	varchar	Yes	Can have multiple segments, but one allergy per segment. ALL patient allergies must be sent in every message that includes this segment(s)
DG1 Segment	See General Requirements. Repeatable						
Patient Diagnosis - Description	DG1.4	DG1.4.2	Detail_Value	**VITAL**	varchar	Yes	Can have multiple segments, but one diagnosis per segment. ALL patient diagnoses must be sent in every message that includes this segment(s)
PV2 Segment	See General Requirements. Repeatable						
Patient Diagnosis - Description	PV2.3.2	PV2.3; PV2.3.1	Detail_Value	**VITAL**	varchar	Yes	Can have multiple segments, but one diagnosis per segment. ALL patient diagnoses must be sent in every message that includes this segment(s)

Pharmacy (RDE)

RDE – Medication Orders Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
REQUIRED	Facility Identifier	MSH.4.1	This value must be consistent across ALL message types
REQUIRED	Message Sent Date/Time	MSH.7	
REQUIRED	HL7 Event Type - Message Code	MSH.9.1	
Optional	HL7 Event Type - Trigger Event	MSH.9.2	
RECOMMENDED	Message Control ID	MSH.10	
REQUIRED	Patient MRN	PID.3.1	This value must be a consistent format and length for each patient across ALL message types
REQUIRED	Patient Last Name	PID.5.1	
REQUIRED	Patient First Name	PID.5.2	
REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance; Else RECOMMENDED	Patient Birth Date	PID.7.1	Required on ADT.
REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance; Else RECOMMENDED	Patient Gender	PID.8	Required on ADT.
REQUIRED	Patient Account Number	PID.18.1	This value must be a consistent format and length for each patient across ALL message types
RECOMMENDED	Patient Class	PV1.2	
RECOMMENDED	Point of Care	PV1.3.1	
RECOMMENDED	Room	PV1.3.2	
RECOMMENDED	Bed	PV1.3.3	
RECOMMENDED	Hospital Service	PV1.10	
RECOMMENDED	Patient Type	PV1.18	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Weight	OBX.5	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Height	OBX.5	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Weight Units	OBX.6	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Height Units	OBX.6	
* RECOMMENDED	Patient Allergies - Description	AL1.3.2	
REQUIRED	Order Control	ORC.1	
REQUIRED	Placer Order Number	ORC.2.1	
REQUIRED	Frequency	ORC.7.2.1	
REQUIRED	Give Start Date	ORC.7.4.1	
REQUIRED	Give End Date	ORC.7.5.1	
RECOMMENDED	Order Priority	ORC.7.6	
REQUIRED	Route Code	RXR.1.1	
REQUIRED	Drug Give Code	RXE.2.1	
REQUIRED	Generic Drug Name	RXE.2.2	
REQUIRED	Give Amount	RXE.3	
REQUIRED	Give Units	RXE.5.1	
REQUIRED	Give Dosage Form	RXE.6.1	

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RDE – Medication Orders Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
Optional	Administrative Instructions/Notes	RXE.7.1	
Optional	IV Rate	RXE.23	
Optional	IV Rate Units	RXE.24	
Optional	Give Strength	RXE.25	
Optional	Give Strength Units	RXE.26	
Optional	Additional Instructions/Notes	*NTE.3*	
Additional Requirements for Multi-Component Orders			
REQUIRED	Component Type	RXC.1	
REQUIRED	Component Code	RXC.2.1	
REQUIRED	Component Drug	RXC.2.2	
REQUIRED	Component Dose	RXC.3	
REQUIRED	Component Dose Units	RXC.4.1	
OPTIONAL	Component Strength	RXC.5	
OPTIONAL	Component Strength Units	RXC.6.1	

Don't send only orders from Pyxis, please include all pharmacy medication orders, including Pre-mixed and Compounded IVs.

Chemistry Lab (ORU)

ORU – Lab Results Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
REQUIRED	Facility Identifier	MSH.4.1	This value must be consistent across ALL message types
REQUIRED	Message Sent Date/Time	MSH.7	
REQUIRED	HL7 Event Type - Message Code	MSH.9.1	
Optional	HL7 Event Type - Trigger Event	MSH.9.2	
RECOMMENDED	Message Control ID	MSH.10	
REQUIRED	Patient MRN	PID.3.1	This value must be a consistent format and length for each patient across ALL message types
REQUIRED	Patient Last Name	PID.5.1	
REQUIRED	Patient First Name	PID.5.2	
Optional	Patient Middle Initial	PID.5.3	
REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance; Else RECOMMENDED	Patient Birth Date	PID.7.1	Required on ADT.
REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance; Else RECOMMENDED	Patient Gender	PID.8	Required on ADT.
REQUIRED	Patient Account Number	PID.18.1	This value must be a consistent format and length for each patient across ALL message types
RECOMMENDED	Patient Class	PV1.2	
RECOMMENDED	Point of Care	PV1.3.1	
RECOMMENDED	Room	PV1.3.2	
RECOMMENDED	Bed	PV1.3.3	
RECOMMENDED	Hospital Service	PV1.10	
RECOMMENDED	Patient Type	PV1.18	
REQUIRED	Patient Admit Date/Time	PV1.44	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Weight	OBX.5	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Height	OBX.5	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Weight Units	OBX.6	
*REQUIRED If Pharmacy OneSource to calculate Creatinine Clearance Else RECOMMENDED	Patient Height Units	OBX.6	
REQUIRED	Placer Order Number	OBR.2.1	
REQUIRED if OBR.2.1 not Unique	Filler Order number	OBR.3.1	
REQUIRED	USI Code	OBR.4.1	
REQUIRED	USI Text	OBR.4.2	
REQUIRED	Observation Date/Time	OBR.7.1	
RECOMMENDED	Observation Result Status	OBR.25	
Optional	Set ID	OBX.1	
REQUIRED	Observation ID	OBX.3.1	
REQUIRED	Observation Text	OBX.3.2	
REQUIRED	Observation Value	OBX.5.1	
REQUIRED	Units	OBX.6.1	
REQUIRED	References Range	OBX.7	
REQUIRED	Abnormal Flag	OBX.8	

ORU – Lab Results Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
Optional	Observation Status	OBX.11	
Optional	Comment	*varies*	

- Sentri7 does not utilize order messages

Sentri7 Technical Details

Microbiology (ORU)

General Requirements	
All Microbiology messages must be sent in a discrete format; we cannot accept textual microbiology reports.	**Importance Level of Data by Field** • **REQUIRED** - If the data element is missing or invalid, P1S will accept the message but the data it contains will not be saved to the Sentri7 database. *(Examples: MessageTimeStamp; EventType; MRN)* • **VITAL** - If the data element is missing or invalid, P1S will accept the message and the data it contains will be saved to the Sentri7 database, but Sentri7 functionality will be diminished. *(Examples: Name; PatientClass; PointOfCare)* • **RECOMMENDED** - If the data element is missing or invalid there will be no diminished functionality within Sentri7, however, the missing data may impact P1S' ability to support and troubleshoot application issues. *(Examples: MessageID; MessageSequence)* • **OPTIONAL** - This data is optional and has no impact on Sentri7 functionality. *(Example: SSN)*

			Microbiology ORU			
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ORU_ Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
MSH Segment				MSH is a REQUIRED segment. If it is not included, the message will not be processed.			
Field Separator	MSH.1		N/A	**REQUIRED**	char(1)		Usually	(HL7 Standard). Key to interpreting the HL7 Message and must be the main delimiter used in the message
Encoding Characters	MSH.2		N/A	**REQUIRED**	char(4)		Usually ^~\& (HL7 Standard). Key to interpreting the HL7 Message and must be the encoding characters used in the message
Facility Identifier	MSH.4.1		FacilityID	**REQUIRED**	varchar		Value in the HL7 message is not written to the database, but this value is used to verify that the message is for the correct facility. Multiple identifiers can be used, but they must be a consistent identifier across all message types. **P1S** - Only use positive logic to identify the facility.
Message Sent Date/Time	MSH.7		MessageTimeStamp ObservationDateTime	**REQUIRED**	YYYYMMDDHHMMSS	Yes	Used in message processing decision making, NULL or invalid data will prevent the message from being processed
HL7 Event Type - Message Code	MSH.9.1		N/A	**REQUIRED**	varchar(3)		We don't capture this field, but use the value to determine which logic to apply to the message
HL7 Event Type - Trigger Event	MSH.9.2		EventType	**REQUIRED**	varchar(3)		We don't capture this field, but use the value to determine which logic to apply to the message
Message Control ID	MSH.10		MessageID	**RECOMMENDED**	varchar		Message Control ID is not used by the Sentri7 application; however, it is helpful to P1S analysts and support personnel during troubleshooting.
Message Sequence	MSH.13		MessageSequence	**RECOMMENDED**	real		Message Sequence is not used by the Sentri7 application; however, it is helpful to P1S analysts and support personnel during troubleshooting.
			Patient Visit Section				
PID Segment				PID is a REQUIRED segment. If it is not included, the message will not be processed.			
Patient MRN	PID.3.1	PID.2.1	MedRecNo	**REQUIRED**	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
Patient Last Name	PID.5.1		LastName	**VITAL**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient First Name	PID.5.2		FirstName	**VITAL**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Middle Name	PID.5.3		MiddleName	**RECOMMENDED**	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Suffix	PID.5.4		LastName	**RECOMMENDED**	varchar		If a Patient Suffix is provided, it will be appended to the Last Name. NULL or invalid data will affect the patient card and rule writing

Microbiology ORU							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ORU_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Patient Birth Date	PID.7.1		BirthDate	**REQUIRED** if P1S to calculate Creatinine Clearance and rule writing for age related rules and not provided in another feed Else **VITAL**	datetime	Yes	NULL or invalid data will affect the patient card and rule writing Inaccurate data could cause Creatinine Clearance to be recalculated and inaccurate Age will not be calculated without BirthDate
Patient Gender	PID.8		Gender	**REQUIRED** if P1S to calculate Creatinine Clearance and rule writing for gender related rules and not provided in another feed Else **VITAL**	char(1)	Yes	NULL or invalid data will affect the patient card and rule writing Inaccurate data could cause Creatinine Clearance to be recalculated and inaccurate
Patient Account Number	PID.18.1		AccountNo	**REQUIRED**	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
SSN Number	PID.19.1		SSN	**REQUIRED** in Pennsylvania, othewise **OPTIONAL**	varchar		If not included, SSN will appear blank for reports that display the SSN.
PV1 Segment	PV1 is an OPTIONAL segment for Microbiology messages. However, if this data is not included in any feed, Sentri7 functionality will be diminished.						
Patient Class	PV1.2		PatientClass	**VITAL**	varchar(1)		While not shown in the Sentri7 application, Patient Class is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data will be treated as INPATIENT for the purposes of purge count. HL7 Standard: E - Emergency I - Inpatient O - Outpatient P - Preadmit R - Recurring patient B - Obstetrics C - Commercial Account N - Not Applicable U - Unknown
Patient Nursing Unit	PV1.3.1		PointOfCare	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, service area filter, and the dashboard. Lab ID Event functionality depends on this value being provided (ORU Messages Only – Q1-Q2 2013). Should be consistent between feeds.
Patient Room	PV1.3.2		Room	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Patient Bed	PV1.3.3		N/A	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Hospital Service	PV1.10		Service	**VITAL**	varchar	Yes	NULL or invalid data will affect the service area on the patient card, rules, and the dashboard, as well as affect functionality of the service area filter.
Patient Type	PV1.18		PatientType	**VITAL**			While not shown in the Sentri7 application, Patient Type is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data could result in the patient being treated as INPATIENT for the purposes of purge count.
OBX Segment	OBX for patient Height/Weight. OPTIONAL for Microbiology message. (Currently only used in the ADT_Message spoof.) Repeating						
Patient Weight	OBX.5		Weight	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	float	Yes	Can be sent as GM, OZ, KG, or LBS. (Single unit per message; we cannot accept "145 lbs 8 oz".) P1S will convert and output in the desired format.

Microbiology ORU							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ORU_ Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Patient Weight Units	OBX.6		WeightUnit	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	varchar		Used to indicate which unit of measure was used for weight. Must be included so P1S is able to validate and convert the patient weight.
Patient Height	OBX.5		Height	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	float	Yes	Can be sent as M, CM, MM, or IN. (Single unit per message; we cannot accept "5 ft 11 in".) P1S will convert and output in the desired format.
Patient Height Units	OBX.6		HeightUnit	**REQUIRED** if P1S to calculate Creatinine Clearance Else **VITAL**	varchar		Used to indicate which unit of measure was used for height. Must be included so P1S is able to validate and convert the patient height.
Weight Identifier	OBX.3.1	OBX.3.2; OBX.3.4	N/A	**REQUIRED** if sending weight	varchar		Not captured, but used to identify which OBX segment contains the patient's weight.
Height Identifier	OBX.3.1	OBX.3.2; OBX.3.4	N/A	**REQUIRED** if sending height	varchar		Not captured, but used to identify which OBX segment contains the patient's height.
Culture OBR Section (First OBR Section)							
OBR Segment	OBR for Culture OBR section (first OBR section). REQUIRED for Microbiology messages						
Placer Order Number	OBR.2	OBR.3, OBR.21	PlacerOrderNumber	**REQUIRED**			Set in the VMD using the OruPlacerOrderNumberFoundIn switch
Universal Service Identfier Code	OBR.4.1		USICode	**REQUIRED**			
Universal Service Identifier Text	OBR.4.2		USIText	**REQUIRED**	varchar(20)	Yes	Must include "SCREEN" if it is a screen message, otherwise we assume it is a culture. In Sentri7, the NHSN functionality requires the users to differentiate between microbiology tests that are screening tests and tests that are run to due observed illness in patients. To help the user determine which tests are screening tests, the HL7 interface will look for the word "screen" in this field.
Collection Date	OBR.7		SpecimenDate	**REQUIRED**	YYYYMMDDHHMMSS	Yes	Date the specimen was taken. Messages without a specimen collection date will not be processed
Source	OBR.15		Source	**VITAL**		Yes	
MIC Identifier	OBR.24	MSH.3; OBR.4.3		**REQUIRED**			M', 'MA', 'MB', 'MC', 'MS', 'MIC' This is not persisted to the DB, but is used to determine that this is a Microbiology message.
Observation Status	OBR.25		ObservationStatus	**REQUIRED**		Yes	'P', 'F'
NTE Segment	NTE for Culture OBR segment. Panel level notes. OPTIONAL						
Comment	NTE.3		[Observation] [Mic_Observation] Value	**VITAL**			Each comment in a group of NTE segments will be added as a new line on the panel.
OBX Segment	OBX for Culture OBR section (first OBR section). REQUIRED for Microbiology messages. Repeating						
Organism Identifier	OBX.2			**REQUIRED**			IF OBX.2 = 'CE', OBX.4 = Organism Sequence Number, OBX.5.2 = Organism Name. ALL organisms must be sent in this manner in order for Sentri7 to detect a positive culture.
Observation Identifier	OBX.3.1		[Observation] ObservationCode	**REQUIRED**			
Observation Identifier Text	OBX.3.2		[Observation] ObservationText	**REQUIRED**			

Microbiology ORU							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ORU_ Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Organism Sequence Number	OBX.4		[Mic_Organism] [Mic_Drug] OrganismSeq [Mic_Observation] Organism	REQUIRED			Should match value in the OBR.26.2 (from the susceptibility OBR section). This is the link between Organism and Susceptibilities
Observation Value	OBX.5.1		[Observation] [Mic_Observation] Value	REQUIRED			
Organism Name	OBX.5.2		[Observation] [Mic_Organism] Value	REQUIRED			Must be full organism name only, no abbreviations and no colony counts or other descriptive phrases.
NTE Segment			NTE for Culture OBX segments. Organism level notes. OPTIONAL				
Comment	NTE.3		[Observation] [Mic_Observation] Value	VITAL			Each comment in a group of NTE segments will be added as a new line on the panel.
Susceptibility OBR Sections (All Subsequent OBR Sections)							
OBR Segment			OBR for Susceptibility OBR section (all subsequent OBR sections). REQUIRED for Microbiology messages. Repeating				
Placer Order Number	OBR.2	OBR.3, OBR.21	PlacerOrderNumber	REQUIRED			Set in the VMD using the OruPlacerOrderNumberFoundIn switch
Universal Service Identfier Code	OBR.4.1		USICode	REQUIRED			
Universal Service Identifier Text	OBR.4.2		USIText	REQUIRED	varchar(20)	Yes	Must include "SCREEN" if it is a screen message, otherwise we assume it is a culture. In Sentri7, the NHSN functionality requires the users to differentiate between microbiology tests that are screening tests and tests that are run to due observed illness in patients. To help the user determine which tests are screening tests, the HL7 interface will look for the word "screen" in this field.
Collection Date	OBR.7		SpecimenDate	VITAL	YYYYMMDDHHMMSS	Yes	Date the specimen was taken. Messages without a specimen collection date will not be processed.
Source	OBR.15		Source	VITAL		Yes	
MIC Identifier	OBR.24	MSH.3; OBR.4.3		REQUIRED			'M', 'MA', 'MB', 'MC', 'MS', 'MIC' This is not persisted to the DB, but is used to determine that this is a Microbiology message.
Observation Status	OBR.25		[Observation] [Mic_Drug] ObservationStatus	REQUIRED		Yes	'P', 'F' (Any other value will be trimmed to the first character.)
Organism Sequence Number	OBR.26.2		[Mic_Organism] [Mic_Drug OrganismSeq [Mic_Observation] Organism	REQUIRED			Should match value in the OBX.4 (from the culture OBR section). This is the link between Organism and Susceptibilities
NTE Segment			NTE for Susceptibility OBR segment. Organism level notes. OPTIONAL				
Comment	NTE.3		[Observation] [Mic_Observation] Value	VITAL			Each comment in a group of NTE segments will be added as a new line on the panel.
OBX Segment			OBX for Susceptibility OBR sections (all subsequent OBR sections). REQUIRED for Microbiology messages				
Observation Identifier	OBX.3.1		[Observation] ObservationCode	REQUIRED			

Sentri7 Technical Details

Microbiology ORU							
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB ORU_ Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Observation Identifier Text	OBX.3.2		[Observation] ObservationText [Mic_Drug] [Mic_Observation] DrugName	REQUIRED			Must be full drug name, no abbreviations.
MIC Value	OBX.5.1		[Observation] Value [Mic_Drug] MIC	VITAL			
Susceptibility Results	OBX.8		[Mic_Drug] SIRN	VITAL on Susceptibility OBR sections			Mappable susceptibility results must be provided in order to support MDRO identification and NHSN reporting functionality.
NTE Segment		NTE for Susceptibility OBX segments. Drug level notes. OPTIONAL					
Comment	NTE.3		[Observation] [Mic_Observation] Value	VITAL			Each comment in a group of NTE segments will be added as a new line on the panel.

Sentri7 Technical Details

Radiology (ORU)

ORU – Radiology Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
REQUIRED	Facility Identifier	MSH.4.1	This value must be consistent across ALL message types
REQUIRED	Message Sent Date/Time	MSH.7	
REQUIRED	HL7 Event Type - Message Code	MSH.9.1	
Optional	HL7 Event Type - Trigger Event	MSH.9.2	
RECOMMENDED	Message Control ID	MSH.10	
REQUIRED	Patient MRN	PID.3.1	This value must be a consistent format and length for each patient across ALL message types
REQUIRED	Patient Last Name	PID.5.1	
REQUIRED	Patient First Name	PID.5.2	
Optional	Patient Middle Initial	PID.5.3	
RECOMMENDED	Patient Birth Date	PID.7.1	Required on ADT.
RECOMMENDED	Patient Gender	PID.8	Required on ADT.
REQUIRED	Patient Account Number	PID.18.1	This value must be a consistent format and length for each patient across ALL message types
RECOMMENDED	Patient Class	PV1.2	
RECOMMENDED	Point of Care	PV1.3.1	
RECOMMENDED	Room	PV1.3.2	
RECOMMENDED	Bed	PV1.3.3	
RECOMMENDED	Hospital Service	PV1.10	
RECOMMENDED	Patient Type	PV1.18	
REQUIRED	Patient Admit Date/Time	PV1.44	
REQUIRED	Placer Order Number	OBR.2.1	
REQUIRED if OBR.2.1 not Unique	Filler Order number	OBR.3.1	
REQUIRED	USI Code (Exam Code)	OBR.4.1	
REQUIRED	USI Text (Exam Type)	OBR.4.2	
REQUIRED	Ordering Provider Last Name	OBR.16.2	
REQUIRED	Ordering Provider First Name	OBR.16.3	
REQUIRED	Report Date/Time	OBR.22	
REQUIRED	Report Status	OBR.25	
REQUIRED	Reason for Study	OBR.31	
REQUIRED	Dictated By Last Name	OBR.33.2	
REQUIRED	Dictated By First Name	OBR.33.3	
REQUIRED	Dictated Date	OBR.35.2	
REQUIRED RAD Identifier - We need a way to identify Radiology reports. If this field isn't valued, but a different one is with an identifier, we can use that identifier	USI Coding System	OBR.11	
REQUIRED	Textual Report Values with the following Identifiers: Indication Comparison Date Findings Interpretation History Impression Report	OBX.5	

- Specifically designed for X-Rays in a textual report format with a special emphasis on Chest X-rays.

Post Operative Surgical Reports (ORU)

ORU – Post Operative Surgical Specification			
Notation if a Required Value	Sentri7 Data Element	HL7 Standard Location	Comment
REQUIRED	Facility Identifier	MSH.4.1	This value must be consistent across ALL message types
REQUIRED	Message Sent Date/Time	MSH.7	
REQUIRED	HL7 Event Type - Message Code	MSH.9.1	
Optional	HL7 Event Type - Trigger Event	MSH.9.2	
RECOMMENDED	Message Control ID	MSH.10	
REQUIRED	Patient MRN	PID.3.1	This value must be a consistent format and length for each patient across ALL message types
REQUIRED	Patient Last Name	PID.5.1	
REQUIRED	Patient First Name	PID.5.2	
Optional	Patient Middle Initial	PID.5.3	
RECOMMENDED	Patient Birth Date	PID.7.1	Required on ADT.
RECOMMENDED	Patient Gender	PID.8	Required on ADT.
REQUIRED	Patient Account Number	PID.18.1	This value must be a consistent format and length for each patient across ALL message types
RECOMMENDED	Patient Class	PV1.2	
RECOMMENDED	Point of Care	PV1.3.1	
RECOMMENDED	Room	PV1.3.2	
RECOMMENDED	Bed	PV1.3.3	
RECOMMENDED	Hospital Service	PV1.10	
RECOMMENDED	Patient Type	PV1.18	
REQUIRED	Patient Admit Date/Time	PV1.44	
REQUIRED	Placer Order Number	OBR.2.1	
REQUIRED if OBR.2.1 not Unique	Filler Order number	OBR.3.1	
REQUIRED	USI Code (Surgery Code)	OBR.4.1	
REQUIRED	USI Text (Surgery Type)	OBR.4.2	
REQUIRED	Report Date/Time	OBR.22	
REQUIRED	Report Status	OBR.25	
REQUIRED	Dictated Date	OBR.35.2	
REQUIRED Surgery Identifier - We need a way to identify Surgery reports. If this field isn't valued, but a different one is with an identifier, we can use that identifier	USI Coding System	OBR.11	
REQUIRED	Textual Report Values with the following Identifiers: Start Date/Time End Date/Time Surgeon Assistant Preoperative Diagnosis Postoperative Diagnosis Procedure(s) Anesthesia Implants Indications Procedure in Detail Report	OBX.5	

Textual report format.

Vital Signs (ORU)

General Requirements	
Each Vitals Message with Blood Pressure data should have the following: 1. One and only one **Systolic Blood Pressure** value 2. One and only one **Diastolic Blood Pressure** value 3. Zero or one **Mean Blood Pressure** value 4. Zero or one source value (which applies to all blood pressure values in the message) **Messages which fail to meet the above criteria will not be processed. (MPS Hold)**	**Importance Level of Data by Field** • **REQUIRED** - If the data element is missing or invalid, P1S will accept the message but the data it contains will not be saved to the Sentri7 database. *(Examples: MessageTimeStamp; EventType; MRN)* • **VITAL** - If the data element is missing or invalid, P1S will accept the message and the data it contains will be saved to the Sentri7 database, but Sentri7 functionality will be diminished. *(Examples: Name; PatientClass; PointOfCare)* • **RECOMMENDED** - If the data element is missing or invalid there will be no diminished functionality within Sentri7, however, the missing data may impact P1S' ability to support and troubleshoot application issues. *(Examples: MessageID; MessageSequence)* • **OPTIONAL** - This data is optional and has no impact on Sentri7 functionality. *(Example: SSN)*

Vitals Feed - Can be ORU or ORF message type						
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB Vitals_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
MSH Segment	MSH is a REQUIRED segment. If it is not included, the message will not be processed.						
Field Separator	MSH.1		N/A	REQUIRED	char(1)		Usually | (HL7 Standard). Key to interpreting the HL7 Message and must be the main delimiter used in the message
Encoding Characters	MSH.2		N/A	REQUIRED	char(4)		Usually ^~\& (HL7 Standard). Key to interpreting the HL7 Message and must be the encoding characters used in the message
Facility Identifier	MSH.4.1		FacilityID	REQUIRED	varchar		Value in the HL7 message is not written to the database, but this value is used to verify that the message is for the correct facility. Multiple identifiers can be used, but they must be a consistent identifier across all message types. **P1S** - Only use positive logic to identify the facility.
Message Sent Date/Time	MSH.7		MessageTimeStamp	REQUIRED	YYYYMMDDHHMMSS		Used in MPS decision making, NULL or invalid data will prevent the message from being processed
HL7 Event Type - Message Code	MSH.9.1		N/A	REQUIRED	varchar(3)		We don't capture this field, but use the value to determine which logic to apply to the message
HL7 Event Type - Trigger Event	MSH.9.2		Event Type	REQUIRED	varchar(3)		We don't capture this field, but use the value to determine which logic to apply to the message
Message Control ID	MSH.10		MessageID	RECOMMENDED	varchar		Message Control ID is not used by the Sentri7 application, however, it is helpful to P1S analysts and support personnel during troubleshooting.
Message Sequence	MSH.13		MessageSequence	RECOMMENDED	real		Message Sequence is not used by the Sentri7 application, however, it is helpful to P1S analysts and support personnel during troubleshooting.
PID Segment	PID is a REQUIRED segment. If it is not included, the message will not be processed.						
Patient MRN	PID.3.1	PID.2.1	MedRecNo	REQUIRED	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
Patient Last Name	PID.5.1		LastName	VITAL	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient First Name	PID.5.2		FirstName	VITAL	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Middle Name	PID.5.3		MiddleName	RECOMMENDED	varchar(30)	Yes	NULL or invalid data will affect the patient card and rule writing
Patient Suffix	PID.5.4		LastName	RECOMMENDED	varchar		If a Patient Suffix is provided, it will be appended to the Last Name. NULL or invalid data will affect the patient card and rule writing

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Vitals Feed - Can be ORU or ORF message type						
Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB Vitals_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Patient Birth Date	PID.7.1		BirthDate	**REQUIRED** if P1S to calculate Creatinine Clearance and rule writing for age related rules and not provided in another feed Else **VITAL**	datetime	Yes	NULL or invalid data will affect the patient card and rule writing Inaccurate data could cause Creatinine Clearance to be recalculated and inaccurate Age will not be calculated without BirthDate
Patient Gender	PID.8		Gender	**REQUIRED** if P1S to calculate Creatinine Clearance and rule writing for gender related rules and not provided in another feed Else **VITAL**	char(1)	Yes	NULL or invalid data will affect the patient card and rule writing Inaccurate data could cause Creatinine Clearance to be recalculated and inaccurate
Patient Account Number	PID.18.1		AccountNo	**REQUIRED**	varchar(15)	Yes	Must be less than 16 characters, NULL or invalid data will prevent the message from being processed
SSN Number	PID.19.1		SSN	**REQUIRED** in Pennsylvania, otherwise **OPTIONAL**	varchar		If not included, SSN will blank for reports that display the SSN.
PV1 Segment	PV1 is a VITAL segment for Vitals messages. If it is not included, Sentri7 functionality will be diminished.						
Patient Class	PV1.2		PatientClass	**VITAL**	varchar(1)		While not shown in the Sentri7 application, Patient Class is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data will be treated as INPATIENT for the purposes of purge count. HL7 Standard: E - Emergency I - Inpatient O - Outpatient P - Preadmit R - Recurring patient B - Obstetrics C - Commercial Account N - Not Applicable U - Unknown
Patient Nursing Unit	PV1.3.1		PointOfCare	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, service area filter, and the dashboard. Should be consistent between feeds.
Patient Room	PV1.3.2		Room	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Patient Bed	PV1.3.3		N/A	**VITAL**	varchar	Yes - as Location	NULL or invalid data will affect the location field on the patient card, rules, and the dashboard
Hospital Service	PV1.10		Service	**VITAL**	varchar	Yes	NULL or invalid data will affect the service area on the patient card, rules, and the dashboard, as well as affect functionality of the service area filter.
Patient Type	PV1.18		PatientType	**VITAL**			While not shown in the Sentri7 application, Patient Type is an integral part of it. It is used to determine how long a patient should remain active in Sentri7. NULL or invalid data could result in the patient being treated as INPATIENT for the purposes of purge count.
Patient Admit Date/Time	PV1.44.1		AdmitDate	**RECOMMENDED**	YYYYMMDDHHMMSS	Yes	Used for support and troubleshooting
Patient Discharge Date/Time	PV1.45.1		DischargeDate	**RECOMMENDED**	YYYYMMDDHHMMSS		Used for support and troubleshooting
OBR Segment	OBR is a REQUIRED segment for Vitals messages. If it is not included, the message will not be processed.						

Sentri7 Data Element	HL7 Standard Location	P1S Accepted Alternate Locations	Message DB Vitals_Field	REQUIRED / VITAL / RECOMMENDED / OPTIONAL	Format	Can be used for rules	Comments
Vitals Feed - Can be ORU or ORF message type
Universal Service Identifier	OBR.4.2		N/A	**REQUIRED**	varchar(20)		Identifies the message as a Vitals message
Observation Date/Time	OBR.7.1	OBR.22	ObservationDateTime	**VITAL**	YYYYMMDDHHMMSS		When not included in the message, Sentri7 will use the MessageTimeStamp as the ObsverationDateTime. Invalid data will prevent the message from being processed. (MPS Hold)
OBX Segment	OBX is a VITAL segment for Vitals messages. If it is not included, Sentri7 functionality will be diminished. Repeatable
Observation Identifier Text	OBX.3.2		Code	**REQUIRED**	varchar(50)		Name or description of the measurement, assessment, or observation. Must be unique (ex. can't use the same code for Temperature and Heart Rate). Unidentified codes will cause a hold. Codes which need to be identified: Respiratory Rate, Oxygen Saturation, Temperature, Heart Rate, Systolic Blood Pressure, Diastolic Blood Pressure, Mean Blood Pressure
Observation Value	OBX.5		Value	**REQUIRED**	varchar(2000)		Invalid observations will not be written to the Sentri7 Database. Observations are invalid if they are **not a number**, or fall outside the appropriate range. Valid ranges are: Temperature: 32.2 - 43.3, Respiratory Rate: 3 - 110, Blood Pressure: 15 - 300, Hear Rate: 20 - 240, Oxygen Saturation: 0.0 - 100.0
Units Text	OBX.6.2		Units	**REQUIRED**	varchar(20)		The name or description of the unit of measure. For Temperature observations, if unit of measure can't be determined, the message will not be processed. (MPS Hold)
Observation Method Text	OBX.17.2		Source	**VITAL** for Heart Rate and Temperature observations	varchar(20)		Text describing the measurement method. Valid methods are: Heart Rate Source: SpO2, NBP; pTemp Method: Oral, Rectal, Auxiliary

Example Messages

```
MSH|^~\&||FACILITY IDENTIFIER|||MESSAGE SENT DATE/TIME||HL7 EVENT TYPE^HL7 TRIGGER EVENT|MESSAGE CONTROL ID|||MESSAGE
SEQUENCE
PID|||PATIENT MRN||PATIENT LAST NAME^PATIENT FIRST NAME^PATIENT MIDDLE NAME^PATIENT SUFFIX||PATIENT BIRTH DATE|PATIENT
GENDER||||||||||PATIENT ACCOUNT NUMBER|SSN NUMBER
PV1||PATIENT CLASS|PATIENT NURSING UNIT^PATIENT ROOM^PATIENT BED||||||HOSPITAL SERVICE|||||||PATIENT
TYPE|||||||||||||||||||||||||||PATIENT ADMIT DATE/TIME|PATIENT DISCHARGE DATE/TIME|
OBR||PLACER ORDER NUMBER|FILLER ORDER NUMBER|USI CODE^USI TEXT|||VITALS DATE/TIME|||||||||||||||||LAB IDENTIFIER|VITALS
RESULT STATUS|
OBX|||VITALS ID^VITALS TEXT||VITALS VALUE|VITALS UNITS|REFERENCE RANGE|ABNORMAL FLAG|||VITALS STATUS||||||VITALS SOURCE


MSH|^~\&||MSH|||201212121212||ADT^A01|0000123||000000001
PID|||N0000001||DOE^JOHN^JAMES||121212|MALE|||||||||123456789|554096547
PV1||I|ICU^552^12|||||||ICU|||||||I|||||||||||||||||||||||||||||201212121212||
OBR||P87654|87654|VIT^VITALS RESULT|||201212121212|||||||||||||||||LAB|F|
OBX|1||RESPRATE^Respiratory Rate||20|^BPM|0-5||||F
OBX|2||OXYSAT^Oxygen Saturation||10|^mgL|||||F
OBX|3||TEMP^Tempearture||40.0||^Celsius||||F|||||Rectal
OBX|4||HR^Heart Rate||180|^BPM | ||||F||||||Sp02
OBX|5||SYSTBP^Systolic Blood Pressure||120|^mmHg|||||F
OBX|6||DIASBP^Diastolic Blood Pressure||80|^mmHg|||||F
OBX|7||MEANBP^Mean Blood Pressure||160|^mmHg|||||F
```

Procedure Feed (SIU)

SIU – Procedure Specification					
Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	Value	Type / Length	NHSN Required
REQUIRED	Field Separators	MSH.1.1			
REQUIRED	Encoding Characters	MSH.2.1			
RECOMMENDED	Sending Application	MSH.3.1			
REQUIRED	Facility Identifier	MSH.4.1	This value must be consistent across ALL message types		
RECOMMENDED	Receiving Application	MSH.5.1			
RECOMMENDED	Receiving Facility	MSH.6.1			
REQUIRED	Message Sent Date/Time	MSH.7.1			
Optional	Security	MSH.8.1			
REQUIRED	HL7 Event Type - Message Code	MSH.9.1	SIU		
REQUIRED	HL7 Event Type - Trigger Event	MSH.9.2	S12, S13, S14, S15		
REQUIRED	Message Control ID	MSH.10.1			
REQUIRED	Processing ID	MSH.11.1			
REQUIRED	Version ID	MSH.12.1			
Optional	Sequence Number	MSH.13.1			
Optional	Continuation Pointer	MSH.14.1			
Optional	Accept Acknowledgement Type	MSH.15.1			
Optional	Application Acknowledgement Type	MSH.16.1			
Optional	Country Code	MSH.17.1			
Optional	Character Set	MSH.18.1			
Optional	Principal Language of Message	MSH.19.1			
Optional	Set ID	PID.1.1			
Optional	External Patient ID	PID.2.1			
REQUIRED	Patient MRN (Internal Patient ID)	PID.3.1	This value must be a consistent format and length for each patient across ALL message types		REQUIRED
Optional	Alternate Patient ID	PID.4.1			
REQUIRED	Patient Last Name	PID.5.1			RECOMMENDED
REQUIRED	Patient First Name	PID.5.2			RECOMMENDED
Optional	Patient Middle Initial	PID.5.3			
Optional	Mother's Maiden Name	PID.6.1			
RECOMMENDED	Patient Birth Date (date/time)	PID.7.1			REQUIRED
RECOMMENDED	Patient Gender	PID.8.1			REQUIRED
Optional	Patient Alias	PID.9.1			
RECOMMENDED	Race	PID.10.1			
Optional	Patient Address	PID.11.1			
Optional	County Code	PID.12.1			
Optional	Home Phone Number	PID.13.1			
Optional	Business Phone Number	PID.14.1			
Optional	Primary Language	PID.15.1			
Optional	Marital Status	PID.16.1			
Optional	Religion	PID.17.1			
REQUIRED	Patient Account Number	PID.18.1	This value must be a consistent format and length for each patient across ALL		

SIU – Procedure Specification					
Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	Value	Type / Length	NHSN Required
			message types		
Required in Pennsylvania, otherwise optional, can come from the ADT feed	SSN Number	PID.19.1			REQUIRED in Pennsylvania, otherwise optional
Optional	Drivers License Number	PID.20.1			
RECOMMENDED	Ethnic Group	PID.21.1			
Optional	Birth Place	PID.22.1			
Optional	Multiple Birth Indicator	PID.23.1			
Optional	Birth Order	PID.24.1			
Optional	Citizenship	PID.25.1			
Optional	Veterans Military Status	PID.26.1			
Optional	Nationality	PID.27.1			
RECOMMENDED	Patient Death Date and Time	PID.28.1			
RECOMMENDED	Patient Death Indicator	PID.29.1			
RECOMMENDED	Patient Class	PV1.2			
RECOMMENDED	Point of Care	PV1.3.1			
RECOMMENDED	Room	PV1.3.2			
RECOMMENDED	Bed	PV1.3.3			
RECOMMENDED	Attending Doctor Code	PV1.7.1			
RECOMMENDED	Attending Doctor Last Name	PV1.7.2			
RECOMMENDED	Attending Doctor First Name	PV1.7.3			
RECOMMENDED	Hospital Service	PV1.10			
REQUIRED	Patient Type	PV1.18			
REQUIRED	Patient Admit Date/Time	PV1.44			
REQUIRED	Filler Appointment Number	ZSG.1.1		String 20	
REQUIRED	Procedure Start Date Time	ZSG.2.1		YYYYMMDDHHMM	REQUIRED to calculate duration
REQUIRED	Procedure End Date Time	ZSG.3.1		YYYYMMDDHHMM	REQUIRED to calculate duration
REQUIRED	Procedure Code	ZSG.4.1		CE 40	REQUIRED, can be an ICD-9 code, the NSHN procedure code or an internal hospital procedure code
RECOMMENDED	Procedure Description	ZSG.4.2		String 250	
REQUIRED	ASA Score	ZSG.5.1		String 10	CONDITIONALLY REQUIRED, REQUIRED for inpatient procedures
REQUIRED	Wound Class	ZSG.6.1		String 10	REQUIRED
RECOMMENDED	Surgeon Code	ZSG.7.1		CE 5	Optional
RECOMMENDED	Surgeon Last Name	ZSG.7.2		XCN 25	
RECOMMENDED	Surgeon First Name	ZSG.7.3		XCN 25	
RECOMMENDED	Anesthesiologist Code	ZSG.8.1		CE 5	
RECOMMENDED	Anesthesiologist Last Name	ZSG.8.2		XCN 25	
RECOMMENDED	Anesthesiologist First Name	ZSG.8.3		XCN 25	
RECOMMENDED	Procedure Room Name	ZSG.9.1		String 50	

SIU – Procedure Specification

Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	ZSD 1.1 Value String 25	ZSD 2.1 Type / Length	NHSN Required
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Antibiotic 1 Desc	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Antibiotic 1 Start	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Antibiotic 1 End	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Anes. Start	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Anes. End	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Enter OR	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Exit OR	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Enter PACU	YYYYMMDDHHMM	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Exit PACU	YYYYMMDDHHMM	
Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	ZSD 1.1 Value String 25	ZSD 2.1 Type / Length	NHSN Required
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Call Back Case	String 10	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	ER Case	String 10	REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Admit Type Description	String 10	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Post Case Disposition	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Reporting Specialty	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Complication Desc	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Specimen	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Pre Op Diagnosis	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Post Op Diagnosis	String 50	REQUIRED
Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	ZSD 1.1 Value String 25	ZSD 2.1 Type / Length	NHSN Required
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Anesthesia Type	String 10	REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Endoscope	String 10	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Implant	String 10	REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Outpatient	String 10	REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Trauma Case	String 10	REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Multiple Procedure	String 50	
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	HPRO Type	String 2	CONDITIONALLY REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	KPRO Type	String 2	CONDITIONALLY REQUIRED

SIU – Procedure Specification

Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	ZSD 1.1 Value String 25	ZSD 2.1 Type / Length	NHSN Required
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Spinal Level	String 2	CONDITIONALLY REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Diabetes Mellitus	String 10	CONDITIONALLY REQUIRED
Notation if a Required Value in HL7 message	Sentri7 Data Element	HL7 Standard Location	ZSD 1.1 Value String 25	ZSD 2.1 Type / Length	NHSN Required
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Approach Type	String 1	CONDITIONALLY REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	Duration of Labor	Decimal (6,3)	CONDITIONALLY REQUIRED
REQUIRED as appropriate to the procedure	Specific Field Labels in ZSD 1.1 Data Value in ZSD 2.1	ZSD.1.1 ZSD 2.1	ICD Code	String 10	

- This is from an OR Procedure System (NOT scheduling) and may contain data from multiple sources
- Information may be received several days post-op
- Hospitals are federally mandated to report required information to NHSN
- Each message must reflect one procedure
  - NHSN requires that procedures are submitted individually and Sentri7 supports only one procedure in each message. Secondary procedures need to be in a separate message
- Trigger events types accepted – S12, S13, S14, S15
  - Only accept complete updates in the messages, not partial information

Sample Message

```
MSH|^~\&|PICIS|381|Sentri7|381|200811180944||SIU^S12|35055223|P|1.3
PID|1||000791246||DOE^JOHN||198008180000|M|||||||||||064115033
ZSG|82605|200809230812|200809230936|477772^ CHOLECYSTECTOMY|1|1|3868^FURWOOD^TOM|1234^WOOD^SALLY|9-12
ZSD|Antibiotic 1 Desc|1 GM OF ANCEF
ZSD|Antibiotic 1 Start|200811180815
ZSD|Antibiotic 1 End|200811180915
ZSD|Anes. Start|200811180812
ZSD|Anes. End|200811180936
ZSD|Enter OR|200811180812
ZSD|Exit OR|200811180936
ZSD|Enter PACU|200811180935
ZSD|Exit PACU|200811181110
ZSD|Call Back Case|No
ZSD|ER Case|No
ZSD|Admit Type Desciption|OPB OUTPATIENT IN A BED
ZSD|Post Case Disposition|14TH FLOOR
ZSD|Reporting Speciality|GENERAL SURGERY
ZSD|Complication Desc|NONE
ZSD|Specimen|NA|
ZSD|Spinal Level|AC
ZSD|Pre Op Diagnosis|ATHLETIC PUBALGIA
ZSD|Post Op Diagnosis|ATHLETIC PUBALGIA
ZSD|Anesthesia Type|GEN
ZSD|Endoscope|Y
ZSD|Implant|Y
ZSD|Outpatient|N
ZSD|Trauma Case|N
ZSD|Multiple Procedure|N
ZSD|HPRO Type|PR
ZSD|KPRO Type|R
ZSD|Estimated Blood Loss
```

```
ZSD|Diabetes Mellitus|N
ZSD|Approach Type|B
ZSD|Duration of Labor|999.999
```

Attachment H
Health Insurance Portability and Accountability Act (HIPAA)
Business Associate Requirements

1. Definitions

Terms used, but not otherwise defined, in this Schedule shall have the same meaning as those terms are defined in 45 Code of Federal Regulations section 160.103 164.304 and 164.501. (All regulatory references in this Schedule are to Title 45 of the Code of Federal Regulations unless otherwise specified.)

a. *Designated Record Set.* "Designated Record Set" shall have the same meaning as the term "designated record set" in Section 164.501.

b. *Electronic Protected Health Information.* "Electronic Protected Health Information" ("EPHI") means individually identifiable health information that is transmitted or maintained in electronic media, limited to the information created, received, maintained or transmitted by Business Associate from or on behalf of Covered Entity.

c. *Individual.* "Individual" shall have the same meaning as the term "individual" in Section 160.103 and shall include a person who qualifies as a personal representative in accordance with Section 164.502(g).

d. *Privacy Rule.* "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 Code of Federal Regulations Part 160 and Part 164, Subparts A and E.

e. *Protected Health Information.* "Protected Health Information" shall have the same meaning as the term "protected health information" in Section 160.103 and is limited to the information created or received by Contractor from or on behalf of County.

f. *Required By Law.* "Required by law" shall have the same meaning as the term "required by law" in Section 164.103.

g. *Secretary.* "Secretary" shall mean the Secretary of the United States Department of Health and Human Services or his or her designee.

h. *Security Incident.* "Security Incident" shall mean the successful unauthorized access, use, disclosure, modification, or destruction of information or interference with systems operations in an information system, but does not include minor incidents that occur on a daily basis, such as scans, "pings", or unsuccessful random attempts to penetrate computer networks or servers maintained by Business Associate

i. *Security Rule.* "Security Rule" shall mean the Standards for the Protection of Electronic Protected Health Information at 45 CFR Part 160 and Part 164, Subparts A and C.

2. Obligations and Activities of Contractor

a. Contractor agrees to not use or further disclose Protected Health Information other than as permitted or required by the Agreement or as required by law.

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b. Contractor agrees to use appropriate safeguards to prevent the use or disclosure of the Protected Health Information other than as provided for by this Agreement.

c. Contractor agrees to mitigate, to the extent practicable, any harmful effect that is known to Contractor of a use or disclosure of Protected Health Information by Contractor in violation of the requirements of this Agreement.

d. Contractor agrees to report to County any unauthorized use or disclosure of the Protected Health Information not provided for by this Agreement.

e. Contractor agrees to ensure that any agent, including a subcontractor, to whom it provides Protected Health Information received from, or created or received by Contractor on behalf of County, agrees to the same restrictions and conditions that apply through this Agreement to Contractor with respect to such information.

f. If, and only if, Contractor maintains protected health information in a designated record set, Contractor agrees at County's sole cost and expense, to provide access, at the request of County, and in the time and manner agreed to by both parties, to Protected Health Information in a Designated Record Set, to County or, as directed by County, to an Individual in order to meet the requirements under Section 164.524.

g. If Contractor has protected health information in a designated record set, Contractor agrees to make any amendment(s) to Protected Health Information in a Designated Record Set that the County directs or agrees to make pursuant to Section 164.526 at the request of County or an Individual, and in the time and manner designed by County.

h. Contractor agrees to make internal practices, books, and records relating to the use and disclosure of Protected Health Information received from, or created or received by Contractor on behalf of, County available to the County or to the Secretary, in a time and manner designated by the County or the Secretary, for purposes of the Secretary determining County's compliance with the Privacy Rule.

i. Contractor agrees to document such disclosures of Protected Health Information and information related to such disclosures as would be required for County to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with Section 164.528.

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j. Contractor agrees to provide to County or an Individual in the time and manner agreed to between the County and Contractor, information collected in accordance with Section (i) of this Schedule, to permit County to respond to a request by an Individual for an accounting of disclosures of Protected Health Information in accordance with Section 164.528.

k. Contractor shall implement administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of EPHI that Contractor creates, receives, maintains, or transmits on behalf of County.

l. Contractor shall conform to generally accepted system security principles and the requirements of the final HIPAA rule pertaining to the security of health information.

m. Contractor shall ensure that any agent to whom it provides EPHI, including a subcontractor, agrees to implement reasonable and appropriate safeguards to protect such EPHI.

n. Contractor shall report to County any Security Incident within 5 business days of becoming aware of such incident.

o. Contractor shall makes its policies, procedures, and documentation relating to the security and privacy of protected health information, including EPHI, available to the Secretary of the U.S. Department of Health and Human Services and, at County's request, to the County for purposes of the Secretary determining County's compliance with the HIPAA privacy and security regulations.

3. Permitted Uses and Disclosures by Contractor

Except as otherwise limited in this Schedule, Contractor may use or disclose Protected Health Information to perform functions, activities, or services for, or on behalf of, County as specified in the Agreement; provided that such use or disclosure would not violate the Privacy Rule if done by County.

4. Obligations of County

a. County shall provide Contractor with the notice of privacy practices that County produces in accordance with Section 164.520, as well as any changes to such notice.

b. County shall provide Contractor with any changes in, or revocation of, permission by Individual to use or disclose Protected Health Information, if such changes affect Contractor's permitted or required uses and disclosures.

c. County shall notify Contractor of any restriction to the use or disclosure of Protected Health Information that County has agreed to in accordance with Section 164.522.

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5. Permissible Requests by County

County shall not request Contractor to use or disclose Protected Health Information in any manner that would not be permissible under the Privacy Rule if done by County, unless the Contractor will use or disclose Protected Health Information for, and if the Agreement provides for, data aggregation or management and administrative activities of Contractor.

6. Duties Upon Termination of Agreement

a. Upon termination of the Agreement, for any reason, Contractor shall return or destroy all Protected Health Information received from County, or created or received by Contractor on behalf of County. This provision shall apply to Protected Health Information that is in the possession of subcontractors or agents of Contractor. Contractor shall retain no copies of the Protected Health Information.

b. In the event that Contractor determines that returning or destroying Protected Health Information is infeasible, Contractor shall provide to County notification of the conditions that make return or destruction infeasible. Upon mutual agreement of the Parties that return or destruction of Protected Health Information is infeasible, Contractor shall extend the protections of the Agreement to such Protected Health Information and limit further uses and disclosures of such Protected Health Information to those purposes that make the return or destruction infeasible, for so long as Contractor maintains such Protection Health Information.

7. Miscellaneous

a. *Regulatory References.* A reference in this Schedule to a section in the Privacy Rule means the section as in effect or as amended, and for which compliance is required.

b. *Amendment.* The Parties agree to take such action as is necessary to amend this Schedule from time to time as is necessary for County to comply with the requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act, Public Law 104-191.

c. *Survival.* The respective rights and obligations of Contractor under this Schedule shall survive the termination of the Agreement, including but not limited to the Contractor's obligations under Sections 2(h) and 2(i) of this Attachment H.

d. *Interpretation.* Any ambiguity in this Schedule shall be resolved in favor of a meaning that permits County to comply with the Privacy Rule.

e. *Reservation of Right to Monitor Activities.* County shall have the right, at its own expense, to have off site access to and to review all applicable policies of Contractor to determine Contractor's compliance with the requirements relating to the creation, use, access or disclosure of PHI, as it relates to the privacy and security requirements of this Agreement.

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