
OXYGEN SYSTEMS IN CHILDREN'S WARDS

An assessment tool for evaluating systems that use
oxygen concentrators and pulse oximeters in hospitals
where resources are limited

Introduction and instructions for use

Oxygen systems for children in hospitals where resources are limited:

A framework for evaluating systems using oxygen concentrators and pulse oximeters

BACKGROUND

Acute lower respiratory infections (ALRI), particularly pneumonia are a major cause of mortality among children throughout the world. The World Health Organization estimates that respiratory infections are responsible for 19% of deaths in children under 5 years of age. Hypoxaemia is associated with almost all deaths from pneumonia. Additionally, there are other childhood conditions, particularly in the newborn period, for which hypoxaemia is also a significant factor in mortality. Therefore the accurate detection of hypoxaemia and appropriate provision of oxygen is crucial to quality of care for a high proportion of seriously ill children.

Refillable oxygen cylinders, which contain compressed gaseous oxygen, are the most common source of oxygen in hospitals in developing countries. However, cylinders can be an expensive, logistically difficult and unreliable oxygen source, due to the cost of refilling, the need for transportation of the cylinders to the refilling site, and the risk that cylinders will become empty at inconvenient times.

In many settings oxygen concentrators offer a more reliable and cost-effective alternative. Oxygen concentrators are portable devices that draw in atmospheric air and filter out nitrogen, leaving almost pure oxygen. While the initial outlay of capital cost to install concentrators and train staff is moderate, studies have shown that oxygen concentrators are highly cost-effective compared to the substantial ongoing costs of cylinders (Dobson, 1991; Mokuolo and Ajayi 2002), and much more reliable than cylinders in remote settings, as long as there is a continuous source of power.

Oxygen concentrators have been used in paediatric wards in many developing countries over the last decade, with varying levels of support, staff training, programs for ongoing maintenance, and evaluation. There is a danger of such systems being supplied with inadequate training or consideration for maintenance to ensure the ongoing sustainability (Dobson et al., 1996).

The purpose of this evaluation tool is to enable rapid assessment of the oxygen concentrator systems in hospitals where resources are limited. The tool has been designed to identify areas that require remedial action to ensure the function and sustainability of these systems. The tool will also help clinical staff, hospital administrators and program managers understand the ongoing maintenance, training and support requirements for such systems to be effective.

Accurate detection of hypoxaemia is crucial if oxygen delivery systems are to be used optimally. Detection of hypoxaemia is difficult clinically, as clinical signs are neither specific nor sensitive. Pulse oximetry is the best, non-invasive way to detect hypoxaemia in seriously ill children. Increasingly, pulse oximetry is affordable in developing countries and is a way of ensuring that all children who really need oxygen receive it for the appropriate duration of time. Pulse oximetry is also useful to detect failure to respond to treatment, to avoid excessive oxygen administration in premature infants, and to ration what is often a scarce resource. Where affordable, oxygen systems in district level hospitals should consist of a primary source of oxygen (particularly oxygen concentrators, but some hospitals will use stand-alone cylinders or piped oxygen using banks of cylinders), a pulse oximeter for the accurate detection of hypoxaemia and a back-up oxygen cylinder if concentrators are the primary source.

EVALUATION DESIGN

Evaluation using this tool involves an on-site survey of the operational aspects of each hospital's oxygen system and an assessment of the oxygen program at a country or regional level.

The evaluation tool has been created to assess a range of key indicators of operational processes and program sustainability. These indicators are:

- Accessibility and availability of oxygen
- Maintenance of equipment
- Staff training
- System safety and reliability
- Funding and support

The evaluation tool comprises two parts:

Part A is to be used in the hospital ward in collaboration with key contacts from the hospital, such as nursing or medical staff who are daily users of the systems, plus a representative of the hospital administration who has responsibility for such equipment. This component assesses the technical and operational aspects of the oxygen system. There is also an appraisal of each individual concentrator and pulse oximeter where this is available. This allows for tracking of equipment when a subsequent evaluation is conducted, and provides information on the maintenance requirements and lifespan of equipment in that setting.

Part B relates to the programmatic issues of the hospital oxygen system at the country or regional. This section incorporates information on planning and the nature of ongoing support. This information may be derived from a range of sources, which will be determined according to the specific circumstances of each hospital. Likely sources of information for this section include Ministry of Health officials, hospital administrators, and other funding bodies.

Part A should be completed for each hospital, while Part B should be completed for the country or region overall. For example, if there are 4 hospitals participating in the evaluation in a given country, Part A would be completed 4 times (once with each hospital) and Part B would be completed once (describing the country's hospital system).

References

Dobson MB (1991). Oxygen concentrators offer cost savings for developing countries. A study based on Papua New Guinea. *Anaesthesia*, 46(3):217-9.

Dobson MB, Peel D, Khallaf N (1996). Field trial of oxygen concentrators in upper Egypt. *Lancet*, 347(9015):1597-9.

Mokuolo OA and Ajayi OA (2002). Use of an oxygen concentrator in a Nigerian neonatal unit: economic implications and reliability. *Ann Trop Paed*, 22:209-212.

Instructions for completion of the evaluation tool

Preparing for evaluation

Prior to using this tool you should read through the questionnaire to understand the information that is required.

Part A is to be completed at each hospital in collaboration with a key contact there, or can be used by hospital clinicians to monitor their own systems. A separate form should be used for each hospital and each time the monitoring is done.

The time taken to complete this section will vary according to the circumstances of the hospital, and will depend on how readily available the data are. This section would take a few hours or more.

As the survey is comprehensive it is recommended that you schedule a date and time with the hospital contact in advance to ensure that the person is available to work with you to complete this section. This person may also be able to provide you with information for Part B, or direct you to the source of this information.

Part B is to be completed once for the country or region, and relates to the hospital oxygen system in the country / region overall.

If you are to evaluate several hospitals in one region or country, ensure that you are familiar with the travel distances and times between the hospitals and regions, and that you have sufficient paper copies of the evaluation instrument to conduct the evaluation. Note in particular that you will need as many copies of Part A as there are hospitals to evaluate. You should also be aware of the possibility that you may need to return to a hospital for additional information, and that it may take time to identify sources of information for Part B and to schedule meetings with key individuals from these organisations.

General instructions

- The evaluation tool should be printed, with one copy of Part A for each hospital to be evaluated, and one copy of Part B for each country/region participating in the evaluation.
- The tool should be completed using black ball-point pen.
- Write the response in the free space given, or put an X in the relevant box.
- If you make a mistake, place a single line through the error, and initial and date next to the error. Insert the correct response/value. For example:

~~10~~ 8

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- All questions should have a response, except where the tool directs you to skip a section (such as in “Go to” instructions). All possible attempts should be made to determine the answer to each relevant question. If it is not possible to obtain the information for an answer, select “Don’t know”, by putting an X in the box given.
- The response category “N/A” stands for “Not Applicable”. You should select this response if the question is not applicable to the hospital. For example, the question “Are the cylinders used as the back up or main source of oxygen?” is only relevant if there are cylinders on the ward. If there are no cylinders, the N/A response should be selected.
- There is a section at the end of each page that may be used to write additional comments. If there is insufficient room next to a question to insert the full response or if there is any additional information you wish to report, you should use this space.
- Dates:
 - Where responses require dates, the format to insert the date is DAY DAY / MONTH MONTH / YEAR YEAR YEAR YEAR. For example, the 4th of February, 1994 would be entered as 04/02/1994.
 - If you do not know any part of this date, for example, you know that this event took place in February 1994 but not the exact date, then you should enter UK/02/1994. UK stands for “Unknown”. In all cases, fill in as much of the date as you have *accurate* data for.

Definition of terms used

Oxygen system One or more oxygen concentrators complying with ISO 8359, installed and used to supply oxygen to one or more patients via flowsplitters. Used together with a pulse oximeter and a reusable sensor complying with ISO.

Concentrator An oxygen concentrator complying with ISO 8359

Oxygen sensing device

Oximeter A pulse oximeter complying with ISO

Sensor A reusable sensor used with a pulse oximeter to detect oxygen saturation

Flowsplitter

Flow controller

Concentrator outlet

Flowsplitter outlet

Oxygen analyser

Flowmeter

Firebreak devices

Abbreviations

N/A Not applicable

MOH Ministry of Health

NGO Non-Governmental Organisation
L/min Litres per minute

Question-specific queries

Checklist	Complete this checklist as you go to ensure all sections have been completed. There is a separate checklist for each Part.
Question	
1	Insert the date that you visit the hospital to commence Part A
3	This evaluation tool is designed so that it may be completed for each hospital on multiple occasions over time. Therefore, in some cases, this evaluation may have been done previously.
6	If there is a hospital code that has been assigned as part of the evaluation process or is used by the Ministry of Health, enter it here.
8	The primary contact at the hospital is the person you are working with to complete Part A.
19	This question asks about how many children have received oxygen at the hospital. To answer this question, you should determine the longest period for which accurate data are available and enter the number of children who have received oxygen in this period.
22	Include all cylinders, even those that are empty or not functioning for any other reason.
Individual concentrator and oximeter assessment	
An individual assessment should be made of each concentrator and, where applicable, of each oximeter. This should include assessments of any equipment that is not functioning. Space has been provided on the evaluation data form for individual assessment of 4 concentrators (A,B,C,D) and 2 oximeters (AA, BB). If there is more equipment than this, you should print out additional pages and clearly mark that these refer to additional equipment by, for example, changing the question numbers to E, F or CC, DD and so on.	
82-84	Describe here any work that was undertaken during this visit. For example, you may have organised for broken equipment identified in the evaluation to be repaired, or for additional nasal prongs to be sourced. Attach additional pages if insufficient room has been provided.
Summary of priority areas	

This section should be undertaken after you have completed Part A. Based on the information you have collected, identify which areas are in need of attention in this hospital to ensure the ongoing functioning and sustainability of the oxygen system. There is an area provided for you to give details about these or any other areas of the oxygen system that you feel is a priority for attention. Attach extra pages if you require additional space to write about these issues.

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Part A – Hospital Evaluation

CHECKLIST

Section	Page(s)	Completed (✓)
Part A – Hospital evaluation		
Evaluation details	1	
Hospital details	1-2	
Oxygen concentrators	2	
Utilisation of oxygen concentrators	2	
Oxygen cylinders	2-3	
Oxygen delivery methods	3	
Maintenance of oxygen concentrators	3-4	
Systems and safety	4-5	
Staffing and training	5	
Pulse oximetry	6	
Individual concentrator assessment	7-14	
Individual oximeter assessment	15-16	
Additional problems/work undertaken	17	
Summary of priority areas	18	
Evaluator statement of verification	18	

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

PART A - HOSPITAL EVALUATION

This section is to be completed at the hospital in collaboration with a primary contact person from the hospital, who may be doctor, nurse or hospital engineer trained in the use of the concentrators. Completion of this section will also involve assessing individual pieces of equipment in the paediatric ward. An oxygen analyzer will be required to measure the oxygen concentration delivered by each concentrator. An appropriate flowmeter will be required to measure the flows delivered to patients.

EVALUATION DETAILS

1	Evaluation date	____ / ____ / ____ <small>DAY MONTH YEAR</small>
2	Evaluation completed by	Name _____ Position _____ Telephone _____ Email _____ Signature _____ Name _____ Position _____ Telephone _____ Email _____ Signature _____
3	Is this the first evaluation of oxygen concentrator systems in this hospital?	<input type="checkbox"/> ₀ No <input type="checkbox"/>₉₉ Don't know, go to 5 <input type="checkbox"/> ₁ Yes, go to 5
4	Date of previous evaluation	____ / ____ / ____ <small>DAY MONTH YEAR</small>

HOSPITAL DETAILS

5	Hospital name	
6	Hospital code	
7	Hospital address	_____ _____ _____ COUNTRY _____
8	Primary contact at hospital	Name _____ Position _____ Contact (phone/email) _____

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

9	Number of paediatric beds	
10	Number of paediatric admissions in previous year	<input type="checkbox"/> ₉₉ Don't know
11	Overall paediatric case fatality rate in previous year	% <input type="checkbox"/> ₉₉ Don't know
12	Paediatric <i>pneumonia</i> case fatality rate in previous year	% <input type="checkbox"/> ₉₉ Don't know
13	What is currently being used as the <i>main</i> source of oxygen?	<input type="checkbox"/> ₁ Concentrators <input type="checkbox"/> ₂ Stand alone cylinders <input type="checkbox"/> ₃ Piped oxygen from a bank of cylinders <input type="checkbox"/> ₄ Other _____

OXYGEN CONCENTRATORS

14	Date of initial installation of concentrators	____ / ____ / ____ DAY MONTH YEAR
15	How many concentrators were installed <i>initially</i> ?	
16	How many concentrators have been installed <i>in total</i> ?	
17	How many concentrators are working now?	
18	How many patients in the ward could currently receive oxygen concentrator therapy <i>at one time</i> ?	

UTILISATION OF OXYGEN CONCENTRATORS

19	How many children have received oxygen from <i>any source</i> ? (select the longest time period for which accurate data are available and enter number in this period)	<input type="checkbox"/> ₁ Since installation <input type="checkbox"/> ₂ Since last evaluation <input type="checkbox"/> ₃ Previous 4 weeks <input type="checkbox"/> ₄ Previous year <input type="checkbox"/> ₅ Records not available	Number of children _____
20	Of these, what percentage has received oxygen from a concentrator?	%	
21	If an oxygen source other than concentrator has been used, what was/were the reason(s) for this? (you may select more than one)	<input type="checkbox"/> ₁ Concentrator not functioning <input type="checkbox"/> ₂ Power supply not available <input type="checkbox"/> ₃ Concentrator being used by another patient <input type="checkbox"/> ₄ Staff on duty did not know how to use system <input type="checkbox"/> ₅ Other _____ <input type="checkbox"/> ₉₉ Don't know	

OXYGEN CYLINDERS

22	How many oxygen cylinders are in the children's ward today? (include all cylinders)	<input type="checkbox"/> ₉₉ Don't know	
23	Are these cylinders used as the back up or main source of oxygen?	<input type="checkbox"/> ₀ Back up <input type="checkbox"/> ₁ Main source	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A - no cylinders, go to 26
24	How many of these cylinders in the	<input type="checkbox"/> ₉₉ Don't know	

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

	children's ward today are fully functioning? To be fully functioning, the cylinder must contain gas, and the regulator, flowmeter and tubing be intact and functioning.	
25	What is the problem with cylinder(s) that are not functioning? (you may select more than one)	<input type="checkbox"/> ₁ Cylinder empty <input type="checkbox"/> ₂ Regulator problem / no regulator <input type="checkbox"/> ₃ Flow meter problem <input type="checkbox"/> ₄ Other _____ <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – all functioning

OXYGEN DELIVERY METHODS

26	What is the main method used for <i>delivering</i> oxygen?	<input type="checkbox"/> ₁ Nasal prongs <input type="checkbox"/> ₂ Nasal catheter <input type="checkbox"/> ₃ Nasopharyngeal catheter <input type="checkbox"/> ₄ Other _____ <input type="checkbox"/> ₉₉ Don't know
27	How many nasal prongs or catheters are in the ward?	<input type="checkbox"/> _a _____ prongs <input type="checkbox"/> _b _____ catheters <input type="checkbox"/> ₉₉ Don't know
28	Are <i>all</i> the currently used prongs or catheters capable of delivering oxygen? (test with water)	<input type="checkbox"/> ₀ No (enter number not capable of delivering oxygen ____) <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
29	How are the prongs or catheters cleaned?	
30	How <i>often</i> are the prongs or catheters cleaned?	

MAINTENANCE OF OXYGEN CONCENTRATORS

Oxygen concentrator parts		
31	Is there a record of filter cleaning/ replacement for each concentrator?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
32	What is the condition of the external <i>coarse filters</i> ? (Examine it)	<input type="checkbox"/> ₉₉ Don't know
33	(a) How <i>frequently</i> are the external <i>coarse filters</i> cleaned?	<input type="checkbox"/> ₁ Daily <input type="checkbox"/> ₂ Weekly <input type="checkbox"/> ₃ Every few weeks <input type="checkbox"/> ₄ Fortnightly <input type="checkbox"/> ₅ Monthly <input type="checkbox"/> ₆ Other _____ <input type="checkbox"/> ₉₉ Don't know
	(b) How are the external coarse filters cleaned? (e.g. soap and water)	
34	Is there a designated person who is responsible for filter cleaning? Please give details.	<input type="checkbox"/> ₉₉ Don't know
35	If fitted, how frequently are the internal <i>pre-filters</i> changed?	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – not fitted

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

36	If fitted, how frequently are the internal <i>inlet filters</i> changed?	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – not fitted
37	How frequently are the internal <i>bacterial filters</i> changed?	<input type="checkbox"/> ₉₉ Don't know
38	Is there a designated person who is responsible for filter replacement? Please give details.	<input type="checkbox"/> ₉₉ Don't know
39	Are there spare filters available for the concentrators?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
40	Are there other spare parts for the concentrators available at the hospital? Please describe	
Oxygen concentrator servicing		
41	Do the concentrators undergo annual servicing?	<input type="checkbox"/> ₀ No, go to 45 <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
42	Who conducts concentrator servicing?	<input type="checkbox"/> ₉₉ Don't know
43	What is the annual cost of servicing? (report currency)	<input type="checkbox"/> ₉₉ Don't know
44	Who is responsible for the cost of servicing?	<input type="checkbox"/> ₉₉ Don't know
Oxygen concentrator repairs		
45	Since installation, have any of the concentrators required <i>repair</i> ? <small>If it is not possible to report since installation, report an alternative time period (e.g. in the last year) and specify this period.</small>	<input type="checkbox"/> ₀ No, go to 49 <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
46	On the <i>last</i> occasion that a concentrator required repair, for how long was it out of service?	<input type="checkbox"/> ₉₉ Don't know
47	On that occasion, how much did the repair cost? (report currency)	<input type="checkbox"/> ₉₉ Don't know
48	Who performed that repair?	<input type="checkbox"/> ₉₉ Don't know
49	Are hospital staff trained to perform repairs? (for example, hospital engineers?)	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know

SYSTEMS AND SAFETY

50	Is the ward designed with the sickest patients in one location?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
51	Are beds for the sickest patients within reach of the concentrators?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
52	Have "No Smoking" signs been installed in the areas where oxygen is delivered?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
53	Have firebreak devices been installed at each patient outlet?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

54	Are protocols for the use of concentrators available on the ward?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
55	Are protocols for the delivery of oxygen available on the ward?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
56	How many times has the power failed? (select the longest time period for which accurate data are available and enter number of power failures in this period)	<input type="checkbox"/> ₁ Since installation <input type="checkbox"/> ₂ Since last evaluation <input type="checkbox"/> ₃ Previous 4 weeks <input type="checkbox"/> ₄ Previous year <input type="checkbox"/> ₅ Other _____	Number of times _____
57	If the power fails, is there a back-up power source?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes, please specify _____	<input type="checkbox"/> ₉₉ Don't know
58	Is the mains power voltage variable? (+10% or -15%)	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes If possible, give range of variation	<input type="checkbox"/> ₉₉ Don't know
59	Is a voltage regulator used with the concentrators?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes, go to 61	<input type="checkbox"/> ₉₉ Don't know
60	If a voltage regulator is not used, has this caused any problems? If yes, please describe.	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know

STAFFING AND TRAINING

61	How many nurses on the ward are able to use the equipment?		<input type="checkbox"/> ₉₉ Don't know
62	Is there <i>always</i> a nurse on duty who is able to use the equipment?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
63	How many nurses have been trained in the use of the equipment?		<input type="checkbox"/> ₉₉ Don't know
64	How many of these trained nurses are still working on the ward?		<input type="checkbox"/> ₉₉ Don't know
65	How many doctors have been trained in the use of the equipment?		<input type="checkbox"/> ₉₉ Don't know
66	How many of these trained doctors are still working on the ward?		<input type="checkbox"/> ₉₉ Don't know
67	How many hospital engineers have been trained in the use and maintenance of the equipment?		<input type="checkbox"/> ₉₉ Don't know
68	How many of these trained hospital engineers are still working on the ward?		<input type="checkbox"/> ₉₉ Don't know

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

PULSE OXIMETRY

69	Is pulse oximetry available in the ward?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes, go to 71	<input type="checkbox"/> ₉₉ Don't know
70	If pulse oximetry is <i>not</i> available, how are oxygen requirements determined?	<input type="checkbox"/> ₁ WHO clinical signs <input type="checkbox"/> ₂ Other clinical signs (please give details)	<input type="checkbox"/> ₉₉ Don't know
If pulse oximeters are not available, go to A1			
71	Date of first installation of oximeters	____ / ____ / ____ DAY MONTH YEAR	
72	How many oximeters were installed initially?	<input type="checkbox"/> ₉₉ Don't know	
73	How many oximeters are fully functioning now?	<input type="checkbox"/> ₉₉ Don't know	
74	How many sensors are working now?	<input type="checkbox"/> ₉₉ Don't know	
75	Is pulse oximetry done on every child admitted?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
76	Is pulse oximetry done on all children receiving oxygen?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
77	Are protocols for pulse oximetry available on the ward?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
Pulse oximeter servicing			
78	Do the oximeters undergo regular servicing?	<input type="checkbox"/> ₀ No, go to 81 <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
79	Who conducts oximeter servicing?	<input type="checkbox"/> ₉₉ Don't know	
80	How frequently does oximeter servicing take place?	<input type="checkbox"/> ₉₉ Don't know	
Pulse oximeter repairs			
81	Since installation, have any of the oximeters required repair? <small>If it is not possible to report since installation, report the longest time period for which accurate data are available (e.g. in the last year) and specify this period.</small>	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know
82	Have hospital staff been trained to repair oximeters? <small>(for example, hospital engineers?)</small>	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₉₉ Don't know

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EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

INDIVIDUAL CONCENTRATOR ASSESSMENT - Complete for *all* concentrators

-FILL IN A SEPARATE SHEET FOR EACH CONCENTRATOR-

Model	Serial number				
Assessed by _____					
A1	Date of acquisition	____ / ____ / ____ <small>DAY MONTH YEAR</small>			
A2	Is this concentrator currently working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes, go to A2b			
A2a	If it is <i>not</i> currently working, what is the problem? (You may select more than one)	<input type="checkbox"/> ₁ Does not start	<input type="checkbox"/> ₄ Other _____		
		<input type="checkbox"/> ₂ Low oxygen concentration	<input type="checkbox"/> ₉₉ Don't know		
	(Go to A3)	<input type="checkbox"/> ₃ Alarm given			
A2b	If it <i>is</i> currently working, has this concentrator <i>ever</i> required repair?	<input type="checkbox"/> ₀ No, go to A3	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes (number of times____)			
A2c	What has this concentrator required repair for?		<input type="checkbox"/> ₉₉ Don't know		
			<input type="checkbox"/> ₈₈ N/A – all working		
A3	Is the tubing in place?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
A4	Is there any damage to the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
A5	Are there any insects in the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
A6	Is the oxygen sensing device working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₈₈ N/A – no sensing device		
A7	Record total hours of use				
A8	How many oxygen outlets are there on the oxygen concentrator?	<input type="checkbox"/> ₁ 1	<input type="checkbox"/> ₃ 3		
		<input type="checkbox"/> ₂ 2	<input type="checkbox"/> ₄ Other _____		
A9	Does each concentrator outlet have a separate flow <i>controller</i> ? (separate from a flowsplitter)	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
A10	Is a flowsplitter fitted to each concentrator outlet?	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
A11	What is the maximum number of patients who can be supplied by this concentrator via flowsplitters?				
FLOW MEASUREMENT					
		Flowsplitter outlet			
A12	Measure and record the flow from each outlet of the flowsplitter at a setting of 0.5 L/min	1	2	3	4
		5	6	7	8
A13	Measure and record the flow from each outlet of the flowsplitter at a setting of 1.0 L/min	1	2	3	4
		5	6	7	8

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

A14	Measure and record the flow from each outlet of the flowsplitter at a setting of 2.0 L/min	1	2	3	4
		5	6	7	8
OXYGEN CONCENTRATOR MEASUREMENT General instructions: Remove the flowsplitter(s) from the concentrator. Set the flow from each oxygen outlet so that the total flow from the concentrator is equal to the maximum flow specified by the manufacturer.					
		Concentrator Outlet 1	Concentrator Outlet 2	Concentrator Outlet 3	Concentrator Outlet 4
A15	At each oxygen outlet record the test flow				
A16	Record the flow delivered to the oxygen analyser				
A17	For each oxygen outlet record the oxygen concentration at 2 minute intervals for a total of 10 minutes when the concentrator is running at the maximum flow specified by the manufacturer	2			
		4			
		6			
		8			
		10			
A18	Check that the final oxygen concentration is not lower than the manufacturer's specified value or 87% ($\pm 3\%$) (whichever is higher)	Total _____	Total _____	Total _____	Total _____

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

Model	Serial number		
Assessed by _____			
B1	Date of acquisition	____ / ____ / ____ DAY MONTH YEAR	
B2	Is this concentrator currently working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes, go to B2b	
B2a	If it is <i>not</i> currently working, what is the problem? (You may select more than one)	<input type="checkbox"/> ₁ Does not start	<input type="checkbox"/> ₄ Other _____
		<input type="checkbox"/> ₂ Low oxygen concentration	<input type="checkbox"/> ₉₉ Don't know
	(Go to B3)	<input type="checkbox"/> ₃ Alarm given	
B2b	If it <i>is</i> currently working, has this concentrator <i>ever</i> required repair?	<input type="checkbox"/> ₀ No, go to B3	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes (number of times____)	
B2c	What has this concentrator required repair for?		<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – all working
B3	Is the tubing in place?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes	
B4	Is there any damage to the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes	
B5	Are there any insects in the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes	
B6	Is the oxygen sensing device working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know
		<input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₈₈ N/A – no sensing device
B7	Record total hours of use		
B8	How many oxygen outlets are there on the oxygen concentrator?	<input type="checkbox"/> ₁ 1	<input type="checkbox"/> ₃ 3
		<input type="checkbox"/> ₂ 2	<input type="checkbox"/> ₄ Other _____
B9	Does each concentrator outlet have a separate flow <i>controller</i> ? (separate from a flowsplitter)	<input type="checkbox"/> ₀ No	
		<input type="checkbox"/> ₁ Yes	
B10	Is a flowsplitter fitted to each concentrator outlet?	<input type="checkbox"/> ₀ No	
		<input type="checkbox"/> ₁ Yes	
B11	What is the maximum number of patients who can be supplied by this concentrator via flowsplitters?		
FLOW MEASUREMENT			
		Flowsplitter outlet	
B12	Measure and record the flow from each outlet of the flowsplitter at a setting of 0.5 L/min	1	2
		3	4
		5	6
		7	8
B13	Measure and record the flow from each outlet of the flowsplitter at a setting of 1.0 L/min	1	2
		3	4
		5	6
		7	8
B14	Measure and record the flow from each outlet of the flowsplitter at a setting of 2.0 L/min	1	2
		3	4
		5	6
		7	8

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

OXYGEN CONCENTRATOR MEASUREMENT					
General instructions: Remove the flowsplitter(s) from the concentrator. Set the flow from each oxygen outlet so that the total flow from the concentrator is equal to the maximum flow specified by the manufacturer.					
		Concentrator Outlet 1	Concentrator Outlet 2	Concentrator Outlet 3	Concentrator Outlet 4
B15	At each oxygen outlet record the test flow				
B16	Record the flow delivered to the oxygen analyser				
B17	For each oxygen outlet record the oxygen concentration at 2 minute intervals for a total of 10 minutes when the concentrator is running at the maximum flow specified by the manufacturer	2			
		4			
		6			
		8			
		10			
B18	Check that the final oxygen concentration is not lower than the manufacturer's specified value or 87% ($\pm 3\%$) (whichever is higher)	Total _____	Total _____	Total _____	Total _____

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

Model	Serial number				
Assessed by _____					
C1	Date of acquisition	____ / ____ / ____ DAY MONTH YEAR			
C2	Is this concentrator currently working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes, go to C2b			
C2a	If it is <i>not</i> currently working, what is the problem? (You may select more than one)	<input type="checkbox"/> ₁ Does not start	<input type="checkbox"/> ₄ Other _____		
		<input type="checkbox"/> ₂ Low oxygen concentration	<input type="checkbox"/> ₉₉ Don't know		
	(Go to C3)	<input type="checkbox"/> ₃ Alarm given			
C2b	If it <i>is</i> currently working, has this concentrator <i>ever</i> required repair?	<input type="checkbox"/> ₀ No, go to C3	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes (number of times____)			
C2c	What has this concentrator required repair for?		<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – all working		
C3	Is the tubing in place?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
C4	Is there any damage to the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
C5	Are there any insects in the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
C6	Is the oxygen sensing device working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₈₈ N/A – no sensing device		
C7	Record total hours of use				
C8	How many oxygen outlets are there on the oxygen concentrator?	<input type="checkbox"/> ₁ 1	<input type="checkbox"/> ₃ 3		
		<input type="checkbox"/> ₂ 2	<input type="checkbox"/> ₄ Other _____		
C9	Does each concentrator outlet have a separate flow <i>controller</i> ? (separate from a flowsplitter)	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
C10	Is a flowsplitter fitted to each concentrator outlet?	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
C11	What is the maximum number of patients who can be supplied by this concentrator via flowsplitters?				
FLOW MEASUREMENT					
		Flowsplitter outlet			
C12	Measure and record the flow from each outlet of the flowsplitter at a setting of 0.5 L/min	1	2	3	4
		5	6	7	8
C13	Measure and record the flow from each outlet of the flowsplitter at a setting of 1.0 L/min	1	2	3	4
		5	6	7	8
C14	Measure and record the flow from each outlet of the flowsplitter at a setting of 2.0 L/min	1	2	3	4
		5	6	7	8

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

OXYGEN CONCENTRATOR MEASUREMENT					
General instructions: Remove the flowsplitter(s) from the concentrator. Set the flow from each oxygen outlet so that the total flow from the concentrator is equal to the maximum flow specified by the manufacturer.					
		Concentrator Outlet 1	Concentrator Outlet 2	Concentrator Outlet 3	Concentrator Outlet 4
C15	At each oxygen outlet record the test flow				
C16	Record the flow delivered to the oxygen analyser				
C17	For each oxygen outlet record the oxygen concentration at 2 minute intervals for a total of 10 minutes when the concentrator is running at the maximum flow specified by the manufacturer	2			
		4			
		6			
		8			
		10			
C18	Check that the final oxygen concentration is not lower than the manufacturer's specified value or 87% ($\pm 3\%$) (whichever is higher)	Total _____	Total _____	Total _____	Total _____

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

Model	Serial number				
Assessed by _____					
D1	Date of acquisition	____ / ____ / ____ DAY MONTH YEAR			
D2	Is this concentrator currently working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes, go to D2b			
D2a	If it is <i>not</i> currently working, what is the problem? (You may select more than one)	<input type="checkbox"/> ₁ Does not start	<input type="checkbox"/> ₄ Other _____		
		<input type="checkbox"/> ₂ Low oxygen concentration	<input type="checkbox"/> ₉₉ Don't know		
	(Go to D3)	<input type="checkbox"/> ₃ Alarm given			
D2b	If it <i>is</i> currently working, has this concentrator <i>ever</i> required repair?	<input type="checkbox"/> ₀ No, go to D3	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes (number of times____)			
D2c	What has this concentrator required repair for?		<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – all working		
D3	Is the tubing in place?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
D4	Is there any damage to the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
D5	Are there any insects in the tubing?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes			
D6	Is the oxygen sensing device working?	<input type="checkbox"/> ₀ No	<input type="checkbox"/> ₉₉ Don't know		
		<input type="checkbox"/> ₁ Yes	<input type="checkbox"/> ₈₈ N/A – no sensing device		
D7	Record total hours of use				
D8	How many oxygen outlets are there on the oxygen concentrator?	<input type="checkbox"/> ₁ 1	<input type="checkbox"/> ₃ 3		
		<input type="checkbox"/> ₂ 2	<input type="checkbox"/> ₄ Other _____		
D9	Does each concentrator outlet have a separate flow <i>controller</i> ? (separate from a flowsplitter)	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
D10	Is a flowsplitter fitted to each concentrator outlet?	<input type="checkbox"/> ₀ No			
		<input type="checkbox"/> ₁ Yes			
D11	What is the maximum number of patients who can be supplied by this concentrator via flowsplitters?				
FLOW MEASUREMENT					
		Flowsplitter outlet			
D12	Measure and record the flow from each outlet of the flowsplitter at a setting of 0.5 L/min	1	2	3	4
		5	6	7	8
D13	Measure and record the flow from each outlet of the flowsplitter at a setting of 1.0 L/min	1	2	3	4
		5	6	7	8
D14	Measure and record the flow from each outlet of the flowsplitter at a setting of 2.0 L/min	1	2	3	4
		5	6	7	8

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

OXYGEN CONCENTRATOR MEASUREMENT					
General instructions: Remove the flowsplitter(s) from the concentrator. Set the flow from each oxygen outlet so that the total flow from the concentrator is equal to the maximum flow specified by the manufacturer.					
		Concentrator Outlet 1	Concentrator Outlet 2	Concentrator Outlet 3	Concentrator Outlet 4
D15	At each oxygen outlet record the test flow				
D16	Record the flow delivered to the oxygen analyser				
D17	For each oxygen outlet record the oxygen concentration at 2 minute intervals for a total of 10 minutes when the concentrator is running at the maximum flow specified by the manufacturer	2			
		4			
		6			
		8			
		10			
D18	Check that the final oxygen concentration is not lower than the manufacturer's specified value or 87% ($\pm 3\%$) (whichever is higher)	Total _____	Total _____	Total _____	Total _____

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

INDIVIDUAL OXIMETER ASSESSMENT – Complete for *all* oximeters

-FILL IN A SEPARATE SHEET FOR EACH OXIMETER-

Model	Serial number	
Assessed by _____		
AA1	Date of acquisition	____ / ____ / ____ <small>DAY MONTH YEAR</small>
AA2	Is this oximeter currently working?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
AA3	Has this oximeter required repair? If yes, list dates (year and month if known) this has occurred.	<input type="checkbox"/> ₀ No, go to AA5 <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes (dates: _____ _____)
AA4	What was the cost for oximeter repair? (specify currency)	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ Was not repaired
AA5	Is the sensor working?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
AA6	Has the sensor ever broken? If yes, list dates (year and month if known) this has occurred.	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes (dates: _____ _____)
AA7	What was the cost for sensor replacement/repair? (specify currency)	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ Was not replaced/ repaired
AA8	For how many months did the previous sensor work?	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – only this sensor used
AA9	How many sensors have been supplied in the last 12 months?	
AA10	How many sensors are not working now?	
AA11a	Is there a guaranteed life on the sensors supplied?	<input type="checkbox"/> ₀ No, go to AA12 <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
AA11b	What is the guaranteed life?	
AA12	How long does it take to obtain a replacement sensor? Take into consideration administrative and transport delays	_____ days / weeks / months

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

Model	Serial number	
Assessed by _____		
BB1	Date of acquisition	___ / ___ / ___ <small>DAY MONTH YEAR</small>
BB2	Is this oximeter currently working?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
BB3	Has this oximeter required repair? If yes, list dates (year and month if known) this has occurred.	<input type="checkbox"/> ₀ No, go to BB5 <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes (dates: _____ _____)
BB4	What was the cost for oximeter repair? (specify currency)	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ Was not repaired
BB5	Is the sensor working?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
BB6	Has the sensor ever broken? If yes, list dates (year and month if known) this has occurred.	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes (dates: _____ _____)
BB7	What was the cost for sensor replacement/repair? (specify currency)	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ Was not replaced/ repaired
BB8	For how many months did the previous sensor work?	<input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₈₈ N/A – only this sensor used
BB9	How many sensors have been supplied in the last 12 months?	
BB10	How many sensors are not working now?	
BB11a	Is there a guaranteed life on the sensors supplied?	<input type="checkbox"/> ₀ No, go to BB12 <input type="checkbox"/> ₉₉ Don't know <input type="checkbox"/> ₁ Yes
BB11b	What is the guaranteed life?	
BB12	How long does it take to obtain a replacement sensor? Take into consideration administrative and transport delays	_____ days / weeks / months

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

ADDITIONAL PROBLEMS/WORK UNDERTAKEN

82	Describe the installation work done during this visit
83	Describe the maintenance work done during this visit
84	Describe any other aspects of the project where problems have been found, and possible solutions to this.

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART A

SUMMARY OF PRIORITY AREAS

Based on the information collected, identify the areas that are not functioning optimally or require improvement to ensure the sustainability of the oxygen systems.

Priority areas requiring attention		
Availability of oxygen concentrators	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Installation of the concentrators and tubing	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Availability of back up oxygen cylinders	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Availability of nasal prongs or catheters	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Maintenance of oxygen concentrators	<input type="checkbox"/> No	<input type="checkbox"/> Yes
▪ concentrator parts	<input type="checkbox"/> No	<input type="checkbox"/> Yes
▪ concentrator servicing	<input type="checkbox"/> No	<input type="checkbox"/> Yes
▪ concentrator repairs	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Systems and safety	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Staffing and training	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Pulse oximetry	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Availability of pulse oximeter sensors	<input type="checkbox"/> No	<input type="checkbox"/> Yes

Describe these and any additional areas that should be priorities for attention

EVALUATOR STATEMENT OF VERIFICATION

I have reviewed all the information on the evaluation form for this hospital. This is, to the best of my knowledge, complete and accurate.

Signed: _____ Name: _____ Dated: ____/____/____
DAY MONTH YEAR

If any further details are required about information on this page, please enter details and the question number it relates to here:

OXYGEN SYSTEMS IN CHILDREN'S WARDS

An assessment tool for evaluating systems that use
oxygen concentrators and pulse oximeters in hospitals
where resources are limited

Part B – Program Issues

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART B

CHECKLIST

Section	Page(s)	Completed (✓)
Part B – Program Issues		
Evaluation details	1	
Scope of program	2	
Responsibility for program	2	
Funding	2-3	
Training	3	
Supervision and support	3	

PART B – PROGRAM ISSUES

This section should be completed for the country or region (as appropriate) included in the evaluation.

It is anticipated that information for this section will be collected from a range of sources, and these will depend upon the specific circumstances of the country or region. Likely sources for this information include the Ministry of Health (MOH), funding NGOs and other funding providers.

EVALUATION DETAILS

Country _____

Region/Province _____

How many hospitals are participating in the current evaluation? _____

Information source(s): (May be more than one, e.g. a department of the MOH, funding NGO, etc.)

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART B

SCOPE OF PROGRAM

*indicate whether each response relates to the country or to the province/region		
85	When did the oxygen program start in this country / province*?	<input type="checkbox"/> ₉₉ Don't know
86	How many hospitals in the country / province* are currently included in the oxygen program?	<input type="checkbox"/> ₉₉ Don't know
87	What department/organisation initiated the program in this country / province*?	<input type="checkbox"/> ₉₉ Don't know

RESPONSIBILITY FOR PROGRAM

88	What department/organisation is responsible for purchasing oxygen equipment?	<input type="checkbox"/> ₉₉ Don't know
89	What department/organisation is responsible for the maintenance of oxygen equipment?	<input type="checkbox"/> ₉₉ Don't know
90	What department/organisation is responsible for coordinating training of hospital staff in the oxygen systems?	<input type="checkbox"/> ₉₉ Don't know
91	What department/organisation supervises and supports hospitals with their oxygen systems?	<input type="checkbox"/> ₉₉ Don't know
92	What department/organisation is responsible for ensuring ongoing sustainability of the oxygen program?	<input type="checkbox"/> ₉₉ Don't know
93	Is there an individual in the MOH designated with responsibility and authority to sustain the oxygen system?	<input type="checkbox"/> ₀ No, go to 95 <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
94	What department/section is this person with?	<input type="checkbox"/> ₉₉ Don't know

FUNDING

95	What was the source of funding for the purchase of the concentrators and oximeters?	<input type="checkbox"/> ₉₉ Don't know
96	Did this funding include training of hospital staff in the use of the concentrators and oximeters?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
97	Did this funding include ongoing maintenance and repair of concentrators and oximeters?	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₁ Yes <input type="checkbox"/> ₉₉ Don't know
98	Did this funding include buying new	<input type="checkbox"/> ₀ No <input type="checkbox"/> ₉₉ Don't know

If any further details are required about information on this page, please enter details and the question number it relates to here:

EVALUATION OF OXYGEN SYSTEMS IN PAEDIATRIC WARDS – PART B

	sensors for oximeters?	<input type="checkbox"/> ₁ Yes <input type="checkbox"/>₈₈ N/A no oximetry
99	Is there currently funding available for the maintenance of the concentrator systems?	<input type="checkbox"/> ₀ No, go to 101 <input type="checkbox"/>₉₉ Don't know <input type="checkbox"/> ₁ Yes
100	What is the source of this funding?	<input type="checkbox"/>₉₉ Don't know
101	Is there a line item in the MOH budget to support the maintenance of oxygen concentrator systems?	<input type="checkbox"/> ₀ No <input type="checkbox"/>₉₉ Don't know <input type="checkbox"/> ₁ Yes
102	Is there a line item in the MOH budget for purchase/repair of sensors for oximeters?	<input type="checkbox"/> ₀ No <input type="checkbox"/>₉₉ Don't know <input type="checkbox"/> ₁ Yes <input type="checkbox"/>₈₈ N/A no oximetry
103	What amount of money is allocated to sustaining oxygen concentrator systems in paediatric wards? <small>(report currency)</small>	<input type="checkbox"/>₉₉ Don't know

TRAINING

104	Are there programs or activities undertaken to train hospital workers in using the oxygen equipment?	<input type="checkbox"/> ₀ No <input type="checkbox"/>₉₉ Don't know <input type="checkbox"/> ₁ Yes
105	What department/organisation conducts these training activities?	<input type="checkbox"/>₉₉ Don't know

SUPERVISION AND SUPPORT

106	Is there an individual/team that visits participating hospitals to provide support for the oxygen system?	<input type="checkbox"/> ₀ No <input type="checkbox"/>₉₉ Don't know <input type="checkbox"/> ₁ Yes
	<i>If yes to 106:</i>	
107	What department/organisation does this individual/team belong to?	<input type="checkbox"/>₉₉ Don't know <input type="checkbox"/>₈₈ N/A
108	How frequently are these support visits made to each hospital?	<input type="checkbox"/>₉₉ Don't know <input type="checkbox"/>₈₈ N/A

If any further details are required about information on this page, please enter details and the question number it relates to here:
