Sheffield Teaching Hospitals NHS
NHS Foundation Trust

Hygiene Solutions

Response to Tender:

Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room/Ward Disinfection Systems

OJEU Number: 2013/S 226-393116

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Welcome!

Dear Team,

Thank you for giving Hygiene Solutions this opportunity to show you why over 60 Hospital organisations around the world have chosen to partner with us.

Over the past seven years, we have been travelling an exciting journey, working with leading hospitals to become a trusted partner in delivering excellence to our patients. With a continual dedication to reaching beyond what we have already achieved, our technology never stands still. In this ITT response, we bring to you the Deprox™ decontamination system developed at Addenbrooke's Hospital in Cambridge, which has become trusted for its ease of use, consistent efficacy and rapid turnaround; our journey is now taking us to new developments that deliver a consistent log6 reduction in less than one hour. We would love you to join us on that journey!

We feel that most importantly, you should know what our customers say about us, so we have included testimonials and contact details from a range of our valued customers, including Domestic Services Team Members and Directors alike.

We trust our response is easy and exciting to follow, and look forward to working with Sheffield Teaching Hospitals NHS Foundation Trust in this evaluation.

Yours faithfully,

Daniel Fentiman | Director

ITT Response:

	1.0 CLINICAL ACCEPTABILITY
	1.1 "4-Log" Kill For Bacterial Spores The decontamination system must achieve a minimum of a "4-Log" kill for bacterial spores. Please confirm that the system offered complies with this requirement, and provide supporting information **1.1 Bidder response** **YES –** The system achieves a minimum of a "4-Log" kill for bacterial spores, with supporting information. **PASS** **NO** – The system does not achieve a minimum of a "4-Log" kill for bacterial spores **FAIL and Elimination from the tender process** **Response:** **YES, the Deprox decontamination system is independently validated to achieve a 6-Log reduction of pathogens in the environment, including *C. diff* and *Bacillus subtilis* spores as well as the vegetative organisms MRSA and *Staphylococcus Aureus*. Please see Appendix 1, the "TNO Report" which validates the efficacy of the IC4™, the patented technology base to the Deprox system. This testing set out to evaluate the efficacy achieved by the Deprox technology on an extensive range of surfaces, positions and angles to best replicate the typical busy hospital environment. Rather than merely testing the Deprox "in-vitro", the endeavour was to give "in-situ" results that are meaningful and realistic to the application of the Deprox in Sheffield Teaching Hospitals NHS Foundation Trust.** **With a single start button, the Deprox system self-analyses in real-time to ensure a successful process is achieved every time it is deployed. Unlike traditional decontamination systems that rely on accurate operator inputs, normally restricted merely to the volumetrics of the room, the Deprox system auto-calculates all necessary environmental variables, including temperature and humidity, and accommodates for the effects any absorbent materials. With this self-analysing function, the Deprox system is able to validate a successful process working on output measures, rather than operator inputs that are subject to error, giving assurance of a successful process every time.** **Added Benefit:** ***E.L Best et al* evaluated the longevity of the effects of decontamination in the environment in the study included in Appendix 25, showing that the**

recolonization of the environment took an extended time owing to the initial reduction in the bio-burden achieved by the Deprox's 6-Log kill. By comparison, a lower kill rate means that less of the bioburden is reduced in the decontamination process, meaning the environment can become recolonized at a much greater rapidity.

1.2 Independent Validation
Please provide independent validation / accreditation of a "4-Log" kill for bacterial spores, applicable to the system offered.

1.2 Bidder Response
YES - Independent validation / accreditation of a "4-Log" kill for bacterial spores provided **PASS**

NO – No independent validation / accreditation of a "4-Log" kill for bacterial spores provided **FAIL and Elimination from the tender process**

Response:

YES, the Deprox decontamination system is independently validated to achieve a 6-Log reduction of pathogens in the environment, including *C. diff* and *Bacillus subtilis* spores as well as the vegetative organisms MRSA and *Staphylococcus Aureus*. Please see Appendix 1, the "TNO Report" which validates the efficacy of the IC4™, the patented technology base to the Deprox system. This testing set out to evaluate the efficacy achieved by the Deprox technology on an extensive range of surfaces, positions and angles to best replicate the typical busy hospital environment. Rather than merely testing the Deprox "in-vitro", the endeavour was to give "in-situ" results that are meaningful and realistic to the application of the Deprox in Sheffield Teaching Hospitals NHS Foundation Trust.

In addition to this independent study, Appendices 2 and 25 are examples of published work that evidence the effect on environmental pathogens achieved by the Deprox system, comparing levels of contamination before cleaning, after cleaning and after Deprox decontamination.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals NHS Foundation Trust to further explore the benefits of decontamination in the environment. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development. For more information, please contact tom.lister@hygienesolutionsuk.com.

1.2.1 Test Methods & Efficacy Against Organisms or Test Surrogates
Bidders are required to provide details of test methods used to demonstrate efficacy against the following organisms or their test surrogates. The supporting data should describe how comparable test methods are to

practical conditions for the use of the disinfectant. This will be taken into account in the evaluation and scoring. The closer to practical conditions for use of the disinfectant, the higher the score to be allocated. The bidder is invited to submit citations that provide robust evidence to support the efficacy of the system offered, including the even distribution of the fumigant / mist within the room

1.2.1.1 Clostridium difficile
Bidder Response

Response:

YES, the Deprox decontamination system is independently validated to achieve a 6-Log reduction of *Clostridium difficile* spores in both an in-vivo and in-vitro setting. Please see Appendix 1, the "TNO Report" which validates the efficacy of the IC4™, the patented technology base to the Deprox system. This testing set out to evaluate the efficacy achieved by the Deprox technology on an extensive range of surfaces, positions and angles to best replicate the typical busy hospital environment. Rather than merely testing the Deprox "in-vitro", the endeavour was to give "in-situ" results that are meaningful and realistic to the application of the Deprox in Sheffield Teaching Hospitals NHS Foundation Trust.

Further information:

With a single start button, the Deprox system self-analyses in real-time to ensure a successful process is achieved every time it is deployed. Unlike traditional decontamination systems that rely on accurate operator inputs, normally restricted merely to the volumetrics of the room, the Deprox system auto-calculates all necessary environmental variables, including temperature and humidity, and accommodates for the effects any absorbent materials. With this self-analysing function, the Deprox system is able to validate a successful process working on output measures, rather than operator inputs that are subject to error, giving assurance of a successful process every time.

Other studies have demonstrated the benefit of the Deprox system in reducing *C. diff* in real clinical settings, for example; *E.L Best et al* evaluated the longevity of the effects of the Deprox system for the decontamination of clinical environments in the study included in Appendix 25, showing that the recolonization of the environment took an extended time owing to the initial reduction in the bio-burden achieved by the Deprox's 6-Log kill. By comparison, a lower kill rate means that less of the bioburden is reduced in the decontamination process, meaning the environment can become recolonized at a much greater rapidity. Also "*Impact of Cleaning and Other Interventions on the Reduction of Hospital Acquired C. Difficile*", see Appedix 2, evaluated the longevity of the effects of the Deprox system in long term reduction of *C. diff* infections in the hospital. Whilst it was acknowledged that any reduction of this nature is multi-factorial, cleaning and the introduction of the Deprox systems had the most significant impact on the sustained reduction of infections in patients.

1.2.1.2 Staphylococcus aureus
Bidder Response

Response:

YES, the Deprox decontamination system is independently validated to achieve a 6-Log reduction of *Staphylococcus aureus* vegetative cells in both an in-vivo and in-vitro setting. Please see Appendix 1, the "TNO Report" which validates the efficacy of the IC4™, the patented technology base to the Deprox system. This testing set out to evaluate the efficacy achieved by the Deprox technology on an extensive range of surfaces, positions and angles to best replicate the typical busy hospital environment. Rather than merely testing the Deprox "in-vitro", the endeavour was to give "in-situ" results that are meaningful and realistic to the application of the Deprox in Sheffield Teaching Hospitals NHS Foundation Trust.

Further information:

With a single start button, the Deprox system self-analyses in real-time to ensure a successful process is achieved every time it is deployed. Unlike traditional decontamination systems that rely on accurate operator inputs, normally restricted merely to the volumetrics of the room, the Deprox system auto-calculates all necessary environmental variables, including temperature and humidity, and accommodates for the effects any absorbent materials. With this self-analysing function, the Deprox system is able to validate a successful process working on output measures, rather than operator inputs that are subject to error, giving assurance of a successful process every time.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals NHS Foundation Trust to publish further data around the efficacy of the Deprox system with Staphylococcus aureus in a real life clinical study. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development grants. For more information, please contact tom.lister@hygienesolutionsuk.com.

1.2.1.3 Acinetobacter spp
Bidder Response

YES, the Deprox decontamination system has been independently validated to be effective against Acinitobacter in the environment. Carried out in a clinical setting, this work was based around pre-seeded plates with known quantities of specific organisms placed at a variety of locations around the room to prove the homogeneous diffusion of the hydrogen peroxide vapour produced by the Deprox system, in both the main patient room and the en-suite bathroom. Hygiene Solutions are currently awaiting the publishing of a study to this effect. Due to the peer review and publication process, these studies are not in the public domain

currently but should be available under NDA (non-disclosure agreement) directly between Sheffield Teaching Hospitals NHS Foundation Trust and the publishing parties. Please contact tom.lister@hygienesolutionsuk.com to arrange this.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals NHS Foundation Trust to publish further data around the efficacy of the Deprox system with Enterococcus in a real life clinical study. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development grants. For more information on this, please contact tom.lister@hygienesolutionsuk.com.

1.2.1.4 Enterococcus
Bidder Response

Response:

YES, the Deprox decontamination system has been independently validated to be effective against Enterococcus in the environment. The Deprox system has been effectively deployed in the control of outbreak situations of Enterococcus to good effect with subsequent reduction in patient infections. Hygiene Solutions are currently awaiting the publishing of two studies to this effect. Due to the peer review and publication process, these studies are not in the public domain currently but should be available under NDA (non-disclosure agreement) directly between Sheffield Teaching Hospitals NHS Foundation Trust and the publishing parties. Please contact tom.lister@hygienesolutionsuk.com for more information on this.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals NHS Foundation Trust to publish further data around the efficacy of the Deprox system with Enterococcus in a real life clinical study. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development grants. For more information on this, please see contact tom.lister@hygienesolutionsuk.com.

1.2.1.5 Norovirus
Bidder Response

The Deprox decontamination system has been effectively used for the control Norovirus in many outbreak situations in both the UK, an example of this can be seen in Appendix 6 from Worcester Hospitals who have used the Deprox system for environmental decontamination of wards and clinical areas to excellent effect. The in-vivo validation of Norovirus is challenging due to the nature of the organism and its viable life and the surrogate organism Feline calicevirus is a poor representative.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals

NHS Foundation Trust to publish further data around the efficacy of the Deprox system with Enterococcus in a real life clinical study. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development grants. For more information on this, please contact tom.lister@hygienesolutionsuk.com.

1.2.1.6 Mycobacteria
Bidder Response

YES, the Deprox decontamination system has been independently validated to be effective against Mycobacteria in the environment. Hygiene Solutions are currently awaiting the publishing of a study to this effect. Carried out in a clinical setting, this work was based around pre-seeded plates with known quantities of specific organisms placed at a variety of locations around the room to prove the homogeneous diffusion of the hydrogen peroxide vapour produced by the Deprox system, in both the main patient room and the en-suite bathroom. Due to the peer review and publication process, these studies are not in the public domain currently but should be available under NDA (non-disclosure agreement) directly between Sheffield Teaching Hospitals NHS Foundation Trust and the publishing parties. Please contact tom.lister@hygienesolutionsuk.com for more information on this.

Hygiene Solutions constantly strive to further develop its range of published data, and would welcome the opportunity to work with Sheffield Teaching Hospitals NHS Foundation Trust to publish further data around the efficacy of the Deprox system with Enterococcus in a real life clinical study. Such a collaboration would make the Trust eligible for up to 60% funding from Research and Development grants. For more information on this, please contact tom.lister@hygienesolutionsuk.com.

1.3 System Hardware Cleaning
Please provide details of how the hardware is cleaned

1.3 Bidder Response

With smooth plastic surfaces and even curves, the Deprox system is by design easy and quick to clean. Hygiene Solutions recommend wiping the system down after each deployment, either with a damp microfiber cloth, or with a general purpose detergent wipe. Any further cleaning of the system, for example the fan grille, is carried out in the system's routine servicing by Deprox engineers, meaning less down-time and inconvenience for the Trust's staff. Please see Appendix 26 for cleaning and maintenance information.

1.4 Remote Operation

A remote operation facility of the system is required. Please provide details of remote operation

1.4 Bidder Response

In order to ensure the safe and efficient deployment of the system, the Deprox is activated and monitored remotely by the Deprox Process Monitor (see Appendix 19).

With a highly visible colour-coded lighting display, the Process Monitor communicates which stage the process has reached in a clear method of communication that is understandable even with language barriers, a challenge often faced in teams of cleaning staff. Hygiene Solutions have deliberately avoided incorporating screenage displaying technical details of the process in order to further simplify the operation of the Deprox and to avoid conveying confusing details. With an indication as to whether or not the room may be entered, the Process Monitor also hosts an emergency stop button, meaning that the Deprox process can be terminated easily and safely without the need of being exposed to the treatment cycle, should the need arise. The Deprox process cannot be started unless activated from the key switch situated on the remote Process Monitor, an additional safety feature to ensure that operatives are not present in the room being treated at any stage of the cycle.

Further Development:

Hygiene Solutions are in the final stages of producing a wireless, handheld device which will also be available as an App for common Android and Apple devices, which will further increase the flexibility of the operator interface and the information available to them. The device will log directly onto an internet-based portal via a GSM or Wi-Fi network and automatically up and download information such as; remaining process time, ambient and process concentrations, real-time, Deproxin level indication, system service status etc. From here the operator will also be able to login to the internet portal and view the live status of all Hygiene Solutions decontamination systems across all Trust sites, their service and maintenance status, operational hours, operator usage, ward and location statistics and much more! This portal will also provide Hygiene Solutions the opportunity to 'dial in' and carry out routine software upgrades which will revolutionise the way automated decontamination happens on hospital sites, with many opportunities for other applications within the healthcare cleaning area.

Hygiene Solutions would welcome the opportunity to develop this technology with Sheffield Teaching Hospitals NHS Foundation Trust which would qualify for Innovation Funding of around 60% of the capital cost of this contract. This device will be included as a free of charge 'upgrade' as part of the Gold Service Support the Trust will receive for the first 12 months of this contract. For more information, please contact tom.lister@hygienesolutionsuk.com.

1.5 Ease of Operation

The equipment tendered shall incorporate user friendly features, which facilitate ease of use of the system (This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

1.5 Bidder Response

In the initial stages of development of the Deprox system, Hygiene Solutions brought together six user-groups with different "stakeholder" interests to ensure the system wowed key people from the perspective of efficacy, turnaround, ease of use and implementation. Below are some of the key "ease of use" features that have influenced over 60 hospitals to make the decision that the Deprox system is best for them (please see Client Testimonials in Appendix 12):

1. **Single start button**

The initial user group "break out" sessions identified that one of the key drawbacks of traditional hydrogen peroxide decontamination systems was the need to programme the system to run its process. This immediately introduces a margin for error, and also a complexity and downtime for the operators. In order to ensure consistent efficacy with the decontamination process operated by Band 1 staff, Hygiene Solutions created a self-analysing system that calibrates itself to run a successful process, removing the need for this programming. As a result, the Deprox system simply has one "Start" button to initiate the process, with no confusing screenage, button panels or complex programming.

2. **Process Analyser (Appendix 20)**

In order to make the single start button concept possible, the Deprox is supported by the Process Analyser, a system that is positioned in the room during the Deprox cycle. Monitoring in real-time the process characteristics and output measures, the Process Analyser communicates with the Deprox's on-board computer system to ensure that a successful process is achieved every time the system is deployed, regardless of any inconsistencies in temperature, humidity and absorbency, all of which are

vital factors in a vapour-based decontamination process. This gives operators the assurance of a successful process, without the need to programme any of these parameters into the system.

3. **Step-by-step on screen instructions**

Throughout the set-up stage, the Deprox system gives clear on-screen instructions to guide the operator through its safety checks to ensure a safe and successful process every time it is deployed, whilst ensuring these important stages are not left to memory.

4. **Colour Coding**

Another key feature from the "break out" sessions was to include a colour-coding concept to ensure the easy set-up of the system. As a result, the Process Analyser and Process Monitor both have uniquely coloured plugs that correspond to their sockets in the Deprox system, making it very simple to ensure the system is correctly set up. The remote Process Monitor also uses colour-coded displays to indicate what stage the process has reached, and whether or not the room may be entered (see Appendix 19)

5. **Manoeuvrability**

Positioned on four swivel casters, the Deprox system is very simple to manoeuvre around the hospital (see Appendix 12 for Client Testimonial). With no need to bear the weight of the system or maintain a tilt angle, Hygiene Solutions have significantly reduced the risk of any strain injury. Appendix 39 gives a clear diagram showing that significantly less force is needed to manoeuver the system than a lighter piece of equipment borne on a single axis.

6. **Ventilation Restriction Kit**

How to cover up or isolate ventilation units is a challenge faced with any hydrogen peroxide decontamination system, as this normally involves either working at height to cover the vents, or relying on another department to isolate the systems, often introducing a significant downtime, and limitations in operating hours. For this reason, Hygiene Solutions have developed the Ventilation Restriction Kit (VRK). As shown in Appendix 16, the VRK gives a very simple "from the floor" solution, allowing the operator to extend a telescopic system to cover the vents. Removing the need to work at height, the VRK is quick to set up and stows away on the Deprox unit for transportation, making this a quick, easy and efficient tool. Deployed by the Deprox operators themselves, the VRK removes the dependence on other departments, meaning there are no restrictions on turnaround time and available hours.

7. Fire Detector Cap Kit

The Fire Detector Cap Kit (FDK) has been developed with the same concept as the VRK (details also in Appendix 16) to enable the easy and rapid isolation of fire detector heads. The FDK is a "from the floor" solution that enables the operative to quickly isolated fire detector heads without the need of working at height or depending on other departments. Both of these systems significantly reduce the downtime associated with the set-up and post-treatment stages.

8. Warning Sign

With the purpose of providing a visual entry restriction, Hygiene Solutions have developed a Warning Sign that is positioned on the outside of the door during a process with clear hazard messages in universal pictorial format. Also on the warning sign is a section for the operative to fill out the date, time and location of the process, informing ward staff of the details of each process. On the reverse of this warning sign, a check sheet is printed, giving a memory aid to operators every time a process is run. This makes it very simple to ensure a safe and effective process for every deployment. Uniquely reference numbered, these warning signs then give a "track and trace" record for every process undertaken.

9. DoorBar

In order to prevent access to the room being decontaminated, Hygiene Solutions have developed the DoorBar (see Appendix 16). This incorporates a lockable fastener which is attached to two pieces of extruded plastic, with one piece placed either side of the door. On fastening, the DoorBar system creates a rigid hold to prevent access to the room from personnel in the area. However, it has also been created to allow emergency access should the need arise with a designed "break away" force limit.

Working in areas with confused patients, vulnerable adults and children, the Trust needs the peace of mind that persons will not come into contact with the hydrogen peroxide vapour. Hygiene Solutions have developed a system that has been designed to secure double doors. This enables the user to easily lock doors leading to bays and side-rooms to prevent access during the decontamination process.

10. Vapour Impermeable Tape

In order to avoid the issue of damaging paintwork associated with the tapes recommended for use with several hydrogen peroxide systems,

Hygiene Solutions have developed a low-tack vapour impermeable tape. With a wide band (50mm), the tape is very easy to use and ensures a successful seal whilst not leaving a sticky residue or stripping paintwork. Also in the range of tapes is a high-tack tape for adhering to surfaces such as glass and plastic, as well as a medium-tack webbed tape for sheeting areas in preparation for the Deprox process. Colour coded, these tapes are easily distinguished to ensure the best tape is used for the specific application. The Hygiene Solutions Risk Assessment specifies using Deprox Vapour Impermeable Tape, as it has been fully tested for this application.

11. ProxLog

Traceability is a key feature of the Deprox system, meaning that data can be easily analysed to quickly assess which areas have been decontaminated in the hospital and when. The ProxLog is an independent monitoring device that records process characteristics in real-time, as well as the date, location and operator, giving easily downloadable information on the historic deployments of the Deprox systems. This data can then be filtered, analysed and shared on a web-based portal for reports on Deprox activity, route cause analyses in the transmission of infection, operator involvement and engagement and efficiency of resources.

12. Single System Operation

Hygiene Solutions have given particular focus to ensuring a single-operator function to ensure efficiency and reduce the need of labour allocation to the decontamination process. With this in mind, the Deprox system has incorporated deactivation technology to catalyse the breakdown of H2O2 into water and oxygen. This technology is only otherwise available in a separate unit, meaning two systems are required to run a decontamination process. The Deprox system is the only hydrogen peroxide decontamination system available that both introduces and deactivates hydrogen peroxide vapour in a single system. Furthermore, all accessories for use with the Deprox system, including the Ventilation Restriction Kit, Fire Detector Cap Kit and DoorBar are all designed to stow away on the system, meaning that all necessary equipment can be easily transported to the treatment area by one operator.

13. Further Development

Hygiene Solutions are in the final stages of producing a wireless, handheld device which will also be available as an App for common Android and Apple devices, which will further increase the flexibility of the operator interface and the information available to them. The device will log directly onto an internet-based portal via a GSM or Wi-Fi network and automatically up and download information such as; remaining process

time, ambient and process concentrations, real-time, Deproxin level indication, system service status etc. From here the operator will also be able to login to the internet portal and view the live status of all Hygiene Solutions decontamination systems across all Trust sites, their service and maintenance status, operational hours, operator usage, ward and location statistics and much more! This portal will also provide Hygiene Solutions the opportunity to 'dial in' and carry out routine software upgrades. This device will revolutionise the way automated decontamination happens on hospital sites and has many opportunities for other applications within the healthcare cleaning area.
Hygiene Solutions would welcome the opportunity to develop this technology with Sheffield Teaching Hospitals NHS Foundation Trust which would qualify for Innovation Funding of around 60% of the capital cost of this contract. This device will be included as a free of charge 'upgrade' as part of the Gold Service Support the Trust will receive for the first 12 months of this contract

1.6 Operating Instructions
The trust requires clear, unambiguous operating instructions for the system
Please submit an example of the operating instructions
(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

1.6 Evaluated and Scored by the Trust

Please find an example of our Operating Instructions in Appendix 27. One of Hygiene Solutions' fundamental beliefs is that successfully implementing our technology is just as important as the initial development of that world-leading technology in the first instance. For this reason, Hygiene Solutions invest particular effort into the initial and on-going training of operatives to ensure the safe, effective and consistent use of the Deprox decontamination system. With the objective of ensuring that the system is suitable for use by regular cleaning staff, Hygiene Solutions' operational literature is designed in a user-centric manner, with clear pictures, easy-to-understand diagrams, and simple text.

The Hygiene Solutions Operations Manual incorporates sections including a background and technical specification of the system, how to set up and safely disassemble the Deprox, points to look out for during the process, fault finding and remediation and frequently asked questions. All operatives are then given a theory-based test to verify their comprehension of the safe and effective use of the system before being certified as a Deprox user.

Added Benefit:

In addition to ensuring our literature is easy to follow, we also understand that if there are issues, there is nothing better than speaking to somebody who has experience. Displayed on every piece of equipment, the Hygiene Solutions 24 hour helpline allows Deprox users to access technical support and customer services team personnel any hour of the day or night from where they are on the ward. From the 24 hour helpdesk, the Deprox operator can either be guided through any fault finding and remediation, or if necessary, a swap-out system can be arranged. Covered on Hygiene Solutions' Gold Service Level Agreement, Sheffield Teaching Hospitals would subsequently receive a "swap-out" Deprox system within 4 hours of logging the call, even if it's at 2 o'clock in the morning on Christmas day!

1.7 Reliability

Please give an indication of the average number of call outs per annum, to attend to electrical and mechanical faults, typically on the equipment offered

Scoring: Least Number of Faults = 5, Second Least Number of Faults = 3, Third Least Number of Faults = 1, Remainder = 0

1.7 Bidder Response

Based on a calculation from the hospitals that currently use the Deprox system (more than 60), reactive Deprox service callouts average at approximately 0.48 per machine annum, including faults and damage arising from operator misuse.

In order to reduce the downtime, frustration and inefficiency associated with reactive callouts for the servicing of systems, Hygiene Solutions will work with the Trust to implement a proactive swap-out service schedule, ensuring that any wearing parts and routine service considerations are dealt with before becoming an issue that leads to a callout, without introducing any downtime to the Trust. This will involve systems from Hygiene Solutions' service fleet being swapped out for the Trust's own Deprox systems, ensuring that servicing does not impact on the capacity of the Trust's fleet. Routine servicing covers the re-calibration of the systems and replacement of any wearing parts and is covered inclusively in the Gold Service Level Agreement.

In the case of a reactive callout, the Hygiene Solutions 24 hour Helpdesk fields calls for swap-outs, and any systems for servicing covered by the Gold Service Level Agreement will subsequently be swapped out within four hours. One of the company's key performance indicators is the "up-time" of every customer-owned system, which currently runs at 99.37%.

1.8 Durability & Operational Life

Please give an indication of the operational life of the system. Please base the operational life on the equipment being used for eight hours a day, five days per week, per annum

Scoring: Longest Operational Life = 5, Second Longest Operational Life = 3, Third Longest Operational Life = 1, Remainder = 0

1.8 Bidder Response

Hygiene Solutions are committed to ensuring the on-going benefit of the Deprox systems throughout their life, and for this reason have a documented 12 year "product support plan". This ensures that the current technology can be supported for this duration without any detrimental effects from obsoletion of parts, and will be fully serviced for this period. The company actively sources innovative components, software and parts to increase the efficiency of the Deprox system and to ensure the longevity of its service; these minor upgrades are all fully inclusive in the Gold Support Cover for this duration.

1.9 Ergonomic Handling

For ease of movement, the system shall have an ergonomic handling system. Please provide details of the ergonomic handling system

(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

1.9 Evaluated and Scored by the Trust

Appendix 12 gives feedback from users of the Deprox on how easy the system is to handle and manoeuvre "One feature that we particularly like about the system is how easy it is to manoeuvre; with four swiveling casters, the system bears its own weight, and is so easy to steer". On analysis of the biometrics of typical cleaning staff demographics, and on collaboration with moving and handling consultants, Hygiene Solutions have developed a system that can easily be manoeuvred through a single door space, with a handle positioned at easy operating height to minimise the risk of any associated strains from moving and handling. Hygiene Solutions' objective is to ensure that Deprox users enjoy using this technology, as its ease of use directly correlates with the success of its implementation. Unlike traditional systems, the Deprox is fully self-supporting, with four swivel casters that bear its weight for easy steering. Appendix 39 shows how much less effort is needed to push and steer a system that bears its weight on four wheels as opposed to a single-axis system that needs the operator to bear the weight from the tilt angle of the system.

Another key feature in terms of handling is that all accessories used with the Deprox, including the Process Analyser, Process Monitor, Ventilation Restriction Kit, Fire Detector Cap Kit and DoorBar, are designed to stow away onto the main Deprox system. This means that a single operator is able to easily transport all equipment necessary to the ward for the decontamination process, with no additional carrying. For the purpose of whole-ward decontamination, Hygiene Solutions have developed a PortaStore system, for the easy transportation of large amounts of equipment and consumables to the ward, including multiple Ventilation Restriction Kits, Fire Detector Cap Kits, DoorBars, Deproxin refills, Vapour Impermeable Tape and Deprox Warning Signs.

With an integrated deactivation system, the Deprox completes the entire decontamination process and subsequent deactivation with a single unit. Traditional systems either have no deactivation unit, and breakdown of the H_2O_2 is subject to environmental conditions, or the decontamination systems comprises two separate units, meaning twice the amount of storage, moving and handling.

Another key moving and handling feature with the Deprox system is that the Deproxin chemical, at 4.9% concentration, is not classed as a hazardous chemical, removing the need for specialist storage and handling equipment.

1.10 Machine Dimensions & Weight

Please provide details of the machine's dimensions and weight. The equipment tendered shall be small and light enough to be handled by a diverse collection of the Trust's staffs

(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

The Deprox system's dimensions and weight are as follows:

- **Weight: 62 kg**
- **External Dimensions (H)x(W)x(D):**
  1120 x 580 x 630mm

With four swivel casters, the Deprox system bears its own weight, making it easy to push and steer around the hospital (see Appendix 39). The Deprox's dimensions have been engineered to ensure it can be easily manoeuvred through a single door, with all accessories attached, to ensure its easy, single-operator transportation around the hospital.

1.10 Evaluated and Scored by the Trust

1.11 Preparation Time
The time required to prepare an area, prior to disinfection treatment, shall be established by the Trust's staffs, as part of the Product Demonstration and Trials.

(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

Scoring: Quickest Time = 5, Second Quickest Time = 3, Third Quickest Time = 1, Remainder = 0

1.11 Evaluated and Scored by the Trust

Room preparation specific to the Deprox process with experienced Deprox operatives takes approximately 6 minutes in a side-room, as in the following breakdown:

Vent kit deployment: 2 minutes
Fire Detector Cap Kit deployment: 1 minute
DoorBar Assembly and taping door: 3 minutes

As with any HPV decontamination process, the exposed surfaces in the room will have to be optimised for a successful process, e.g. opening all cupboard doors, turning the mattress on its side and opening dispensers.

The Ventilation restriction kit and fire detector cap kit greatly reduce the downtime associated with HPV decontamination, as this means the process is independent of other departments, e.g. not having for wait for Estates to isolate fire detectors.

In terms of setting up the Deprox system itself to run a decontamination process, the Deprox's self-analysing function means that no operator inputs are needed, removing the downtime associated with programing the system to run its process.

1.12 Area Preparation
Please provide a detailed description of how a room, or other area, is prepared for disinfection treatment

1.12 Bidder Response

The main points in room preparation are to create a sealed air space, expose as many surfaces as possible to the vapour, and remove excess absorbent items. A breakdown of the specific activities is included below,

all of which are included on a check sheet for the operator's use for each Deprox deployment. The check sheet is incorporated on the reverse of the Door Warning Sign (see Appendix 16), which has a unique reference number, meaning the check sheet is included as a quality and safety control and is traceable to each process. Each of the points below are covered thoroughly in our operator training courses, and Deprox operators are frequently assessed on their correct set up of the room.

- **Clean the room in accordance with hospital protocol (e.g. with general purpose or chlorine-based disinfectant)**
- **Ensure all linen is removed, and curtains if dirty (can be left in the room if clean)**
- **Remove all patient items and paper towels**
- **Empty and open dispensers, lockers and bins**
- **Turn the mattress on its side**
- **Turn any removable chair cushions**
- **Ensure all windows are closed**
- **Use the Ventilation Restriction Kit (VRK) to isolate any air conditioning or ventilation units**
- **Use the Fire Detector Cap Kit (FDK) to isolate the smoke detector system**
- **Set up the Deprox system**
- **Secure the door using the DoorBar device**
- **Seal the door with Deprox Vapour Impermeable tape**

1.13 Preparation & Operational Accessories

Please provide details of any accessories that are available, which assist treatment area preparation, and operational use of the system

1.13 Bidder Response

Hygiene Solutions fundamentally believe that creating great technology is important, but ensuring that that technology can be easily implemented into the busy hospital setting is even more important. Below are details of some accessories that Hygiene Solutions have developed to ensure the easy, efficient and effective operation of the Deprox system:

- **Ventilation Restriction Kit (VRK)**

How to cover up or isolate ventilation units is a challenge faced with any hydrogen peroxide decontamination system, as this normally involves either working at height to cover the vents, or relying on another department to isolate the systems, often introducing a significant downtime, and limitations in operating hours. For this reason, Hygiene

Solutions have developed the Ventilation Restriction Kit (VRK). As shown in Appendix 16, the VRK gives a very simple "from the floor" solution, allowing the operator to extend a telescopic system to cover the vents. Removing the need to work at height, the VRK is quick to set up and stows away on the Deprox unit for transportation, making this a quick, easy and efficient tool. Deployed by the Deprox operators themselves, the VRK removes the dependence on other departments, meaning there are no restrictions on turnaround time and available hours.

- **Fire Detector Cap Kit (FDK)**

The Fire Detector Cap Kit (FDK) has been developed with the same concept as the VRK (details also in Appendix 16) to enable the easy and rapid isolation of fire detector heads. The FDK is a "from the floor" solution that enables the operative to quickly isolate fire detector heads without the need of working at height or depend on other departments. Both of these systems significantly reduce the downtime associated with the set-up and post-treatment stages.

- **DoorBar**

Working in areas with confused patients, vulnerable adults and children, the Trust needs the peace of mind that persons will not come into contact with the hydrogen peroxide vapour. Hygiene Solutions have developed the DoorBar system shown in Appendix 16 that has been created to secure double doors. This incorporates a lockable fastener which is attached to two pieces of extruded plastic, with one piece placed either side of the door. On fastening, the DoorBar system creates a rigid hold to prevent access to the room from personnel in the area. However, it has also been created to allow emergency access should the need arise with a designed "break away" force limit. This enables the user to easily lock doors leading to bays and side-rooms to prevent access during the decontamination process.

- **Deprox Vapour Impermeable (DVI) Tape**

In order to avoid the issue of damaging paintwork associated with the tapes recommended for use with several hydrogen peroxide systems, Hygiene Solutions have developed a low-tack vapour impermeable tape. With a wide band (50mm), the tape is very easy to use and ensures a successful seal whilst not leaving a sticky residue or stripping paintwork. Also in the range of tapes is a high-tack tape for adhering to surfaces such as glass and plastic, as well as a medium-tack webbed tape for sheeting areas in preparation for the Deprox process. Colour coded, these tapes are easily distinguished to ensure the best tape is used for the specific application. The Hygiene Solutions Risk Assessment specifies using this

tape, as it is the only tape that has been tested in conjunction with the Deprox system.

- **Deprox Door Warning Sign (DWS)**

With the purpose of providing a visual entry restriction, Hygiene Solutions have developed a Warning Sign that is positioned on the outside of the door during a process with clear hazard messages in universal pictorial format. Also on the warning sign is a section for the operative to fill out the date, time and location of the process, informing ward staff of the details of each process. On the reverse of this warning sign, a check sheet is printed, giving a memory aid to operators every time a process is run. This makes it very simple to ensure a safe and effective process for every deployment. Uniquely reference numbered, these warning signs then give a "track and trace" record for every process undertaken.

- **ProxLog**

Traceability is a key feature of the Deprox system, meaning that data can be easily analysed to quickly assess which areas have been decontaminated in the hospital and when. The ProxLog is an independent monitoring device that records process characteristics in real-time, as well as the date, location and operator, giving easily downloadable information on the historic deployments of the Deprox systems. This data can then be filtered, analysed and shared on a web-based portal for reports on Deprox activity, route cause analyses in the transmission of infection, operator involvement and engagement and efficiency of resources.

- **Deprox Equipment Tags (DET)**

The Deprox Equipment Tags are designed to wrap around pieces of equipment that have been decontaminated, with boxes to record the date. This enables viewing at a glance what equipment has been decontaminated and when, a further tool to ensure a safe environment for our patients

- **Derby Door**

The Derby Door is an inflatable door/wall system that creates a quick-to-erect structure for sealing off areas for decontamination. This has applications in areas such as bays with no doors, and for sealing off sections of corridor for departmentalization in whole-ward decontamination processes.

- **PortaStore**

The PortaStore system has been particularly created for larger

decontamination projects where more equipment is needed. Designed especially for the Deprox's ancillary supporting equipment, the PortaStore provides an efficient solution to storage of additional equipment, including Vent Kits, Fire Detector Cap Kits, DoorBars, Deproxin refills and Deprox Vapour Impermeable Tape, which can then be easily manoeuvred to the treatment area itself for the decontamination project.

Further Development

Hygiene Solutions are in the final stages of producing a wireless, handheld device which will also be available as an App for common Android and Apple devices, which will further increase the flexibility of the operator interface and the information available to them. The device will log directly onto an internet-based portal via a GSM or Wi-Fi network and automatically up and download information such as; remaining process time, ambient and process concentrations, real-time, Deproxin level indication, system service status etc. From here the operator will also be able to login to the internet portal and view the live status of all Hygiene Solutions decontamination systems across all Trust sites, their service and maintenance status, operational hours, operator usage, ward and location statistics and much more! This portal will also provide Hygiene Solutions the opportunity to 'dial in' and carry out routine software upgrades. This device will revolutionise the way automated decontamination happens on hospital sites and has many opportunities for other applications within the healthcare cleaning area.
Hygiene Solutions would welcome the opportunity to develop this technology with Sheffield Teaching Hospitals NHS Foundation Trust which would qualify for Innovation Funding of around 60% of the capital cost of this contract. This device will be included as a free of charge 'upgrade' as part of the Gold Service Support the Trust will receive for the first 12 months of this contract.

1.14 Disinfection Cycle Time
The disinfection cycle time, of an area, shall be established by the Trust's staffs, as part of the Product Demonstration and Trials

(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

Scoring: Quickest Time = 5, Second Quickest Time = 3, Third Quickest Time = 1, Remainder = 0

1.14 Evaluated and Scored by the Trust

Hygiene Solutions welcome the opportunity to allow the Trust to trial the

Deprox equipment,

1.15 Reoccupation Time

The time interval between the end of the disinfection cycle, and the safe reoccupation of the treated area shall be established by the Trust's staffs, as part of the Product Demonstration and Trials

(This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

Scoring: Quickest Time = 5, Second Quickest Time = 3, Third Quickest Time = 1, Remainder = 0

1.15 Evaluated and Scored by the Trust

1.16 Occupancy Indicator

Please provide details of any function that indicates when a disinfected area is safe to re occupy

1.16 Bidder Response

The Deprox's Process Monitor positioned outside of the room clearly indicates with a green light when the Deprox process and deactivation has completed for re-entry of the room. This means that the treatment area itself does not have to be accessed to evaluate whether or not the room may be occupied.

With the real-time monitoring function of the Process Analyser, the Deprox system is intelligent as to concentrations of hydrogen peroxide in the treatment environment. Remaining in direct communication throughout the whole process, the Deprox's on-board computer system then communicates to the Process Monitor, to give a simple colour-coded message to users outside of the room. Throughout the whole treatment cycle, the Process Monitor uses different colours to indicate whether or not the room may be entered and which stage the process has reached.

Hygiene Solutions chose to use a colour-coded display, as it is simple to understand at a glance and overcomes language and understanding barriers common in regular cleaning teams.

Further Development:

Hygiene Solutions are in the final stages of producing a wireless, handheld device which will also be available as an App for common Android and

Apple devices, which will further increase the flexibility of the operator interface and the information available to them. The device will log directly onto an internet-based portal via a GSM or Wi-Fi network and automatically up and download information such as; remaining process time, ambient and process concentrations, real-time, Deproxin level indication, system service status etc. From here the operator will also be able to login to the internet portal and view the live status of all Hygiene Solutions decontamination systems across all Trust sites, their service and maintenance status, operational hours, operator usage, ward and location statistics and much more! This portal will also provide Hygiene Solutions the opportunity to 'dial in' and carry out routine software upgrades. This device will revolutionise the way automated decontamination happens on hospital sites and has many opportunities for other applications within the healthcare cleaning area.

Hygiene Solutions would welcome the opportunity to develop this technology with Sheffield Teaching Hospitals NHS Foundation Trust which would qualify for Innovation Funding of around 60% of the capital cost of this contract. This device will be included as a free of charge 'upgrade' as part of the Gold Service Support the Trust will receive for the first 12 months of this contract

1.17 Compatibility of Disinfection Process with Fixtures, Fittings and Building Fabric

Please provide details of any instances where the disinfection process may have a detrimental effect on fixtures, fittings and building fabric

1.17 Bidder Response

The Deprox HPV process is residue free and completes the decontamination cycle without reaching 'dew point' or leaving any chemical residues on surfaces within the room. Actively monitoring relative humidity in the treatment environment, the Process Analyser ensures that the Deprox process does not reach a condensation point, meaning that damaging hydrogen peroxide residues are not left on surfaces. Coupled with the low concentration of hydrogen peroxide (4.9%), the Deprox technology has revolutionised hospitals' ability to decontaminate sensitive medical equipment as well as ensure compatibility with the built environment.

The Deprox HPV system uses patented technology to generate a vapour of hydrogen peroxide by combining high frequency ultrasonics and controlled air flow. This method allows the Deprox system to generate a vapour of hydrogen peroxide which is highly mobile within the space or room being

treated and will quickly diffuse creating a homogeneous concentration of hydrogen peroxide vapour throughout the space. Being a vapour (as opposed to an aerosol) of hydrogen peroxide, there is a quicker killing action on micro-organisms and the only remaining by products are H2O (water as humidity in the air) and Oxygen at the end of the deactivation cycle.

Unlike traditional hydrogen peroxide products which rely on the operator inputting the process parameters into the equipment to control the process, the Deprox monitors the levels within the space in real time throughout the entire decontamination cycle. This ensures that the room does not reach 'dew point' and avoids condensation forming on surfaces during the process. In contrast, traditional hydrogen peroxide decontamination products which do not have this control mechanism are at risk of reaching 'dew point' during the treatment cycle and a condensate forming on surfaces around the room or space. This condensate may be microscopic but is highly corrosive and is acknowledged by many medical device manufactures as damaging to electronic equipment.

On this basis, Hygiene Solutions have invested a lot of time into working with medical device manufacturers to ensure the Deprox decontamination process is compatible with other medical devices. This work is on-going and will form an integral part of the relationship between Hygiene Solutions and Sheffield Teaching Hospitals NHS Foundation Trust.

1.18 Compatibility of Disinfection Process with Electrical and Electronic Equipment

Please provide details of any instances where the disinfection process may have a detrimental effect on electrical and electronic equipment

1.18 Bidder Response

The Deprox HPV process is residue free and completes the decontamination cycle without reaching 'dew point' or leaving chemical residues on surfaces within the room.

The Deprox HPV system uses patented technology to generate a vapour of hydrogen peroxide by combining high frequency ultrasonics and controlled air flow. This method allows the Deprox system to generate a vapour of hydrogen peroxide which is highly mobile within the space or room being treated and will quickly diffuse creating a homogeneous concentration of hydrogen peroxide vapour throughout the space. Being a vapour (as opposed to an aerosol) of hydrogen peroxide, there is a quicker killing

action on micro-organisms and the only remaining by products are H2O (water as humidity in the air) and Oxygen at the end of the deactivation cycle.

Unlike traditional hydrogen peroxide products which rely on the operator inputting the process parameters into the equipment to control the process, the Deprox monitors the levels within the space in real time throughout the entire decontamination cycle. This ensures that the room does not reach 'dew point' and avoids condensation forming on surfaces during the process. In contrast, traditional hydrogen peroxide decontamination products which do not have this control mechanism are at risk of reaching 'dew point' during the treatment cycle and a condensate forming on surfaces around the room or space. This condensate may be microscopic but is highly corrosive and is acknowledged by many medical device manufactures as damaging to electronic equipment.

On this basis, Hygiene Solutions have invested a lot of time into working with medical device manufacturers to ensure the Deprox decontamination process is compatible with other medical devices. This work is on-going and will form an integral part of the relationship between Hygiene Solutions and Sheffield Teaching Hospitals NHS Foundation Trust.

1.19 Vibration & Noise Levels

Please confirm that the machine offered operates at low vibration and noise levels, which would have no impact on a vulnerable patient environment (This criteria shall be evaluated and scored during the Product Demonstration & Trials, criteria 4.1)

1.19 Evaluated and Scored by the Trust

1.20 Chemical Residue & Odours

After the disinfection process, is there any chemical residue, or odours present that could have an adverse impact on a vulnerable patient environment?

1.20 Bidder Response

With the real-time monitoring function of the Process Analyser, the Deprox system is intelligent as to process conditions inside the treatment area, meaning it will only display a green light on the remote Process Monitor when ambient conditions have reached levels within the EU regulatory exposure levels. This ensures that any level of odour is negligible on entry of the room, and will not affect the patient environment.

1.21 Audit Trail

Please provide details of any audit trail facility provided as standard on the equipment

1.21 Bidder Response

Provided with the Deprox decontamination system, the ProxLog monitoring device records all process conditions and characteristics, including hydrogen peroxide concentrations, humidity and temperature, as well as the location, date, time and operative responsible for the process. Recorded in real-time for each process, this data is displayed on the ProxLog's touch screen display, and can then be downloaded and analysed via our web-based portal, meaning the information can be shared to a controlled user group for analysis, reports and projections. In addition to the ProxLog, each Door Warning Sign has a unique reference number, giving traceability for time, location, date and operative, linking to a check sheet that verifies that each individual process is safely and effectively set up.

Further Devlopment:

Hygiene Solutions are in the final stages of producing a wireless, handheld device which will also be available as an App for common Android and Apple devices, which will further increase the flexibility of the operator interface and the information available to them. The device will log directly onto an internet-based portal via a GSM or Wi-Fi network and automatically up and download information such as; remaining process time, ambient and process concentrations, real-time, Deproxin level indication, system service status etc. From here the operator will also be able to login to the internet portal and view the live status of all Hygiene Solutions decontamination systems across all Trust sites, their service and maintenance status, operational hours, operator usage, ward and location statistics and much more! This portal will also provide Hygiene Solutions the opportunity to 'dial in' and carry out routine software upgrades. This device will revolutionise the way automated decontamination happens on hospital sites and has many opportunities for other applications within the healthcare cleaning area.
Hygiene Solutions would welcome the opportunity to develop this technology with Sheffield Teaching Hospitals NHS Foundation Trust which would qualify for Innovation Funding of around 60% of the capital cost of this contract. This device will be included as a free of charge 'upgrade' as part of the Gold Service Support the Trust will receive for the first 12 months of this contract

2.0 TECHNICAL SPECIFICATION

2.1 Technical Specification

As part of the tender submission, please submit a complete technical specification of the equipment being offered

2.1 Bidder response

Developed to exacting standards to be compliant with ISO14001, and CE marked for our European Clients, the Deprox system has been designed for use in the UK, and is manufactured in the Company's own production and servicing facility in this country. This ensures Hygiene Solutions has complete control over all components sourced and used in the system, as well as the standards to which it is assembled.

Technical details for the Deprox system are as follows:

- **Weight: approx 65 kg**
- **Power requirement: 240v AC single phase 13A approx 600W.**
- **Storage Temperature Range: 0-50 degrees C**
- **External Dimensions (H)x(W)x(D): 1120 x 580 x 630mm**
- **Operational Temperature Range: 10-35 degrees C**
- **Operational Humidity Range: 0-71% RH**
- **Fluid Storage Capacity: 10 litres (full), 13 litres (max)**
- **Ultrasonic Frequency: approx. 1.7 MHz**
- **Airflow: 120m3/hr**

2.2 British & International Standards

The equipment offered shall comply with the relevant British and international standards. Please provide evidence of compliance

2.2 Bidder response

The Deprox system is designed, manufactured and tested to exacting British and International standards, including ISO 14001, ISO13485, ISO9001 and is CE marked. Please See Appendix 28 for CE mark

certification of the Deprox system. Hygiene Solutions insist on understanding the supply chain of any component used in the Deprox system, sourcing only the highest quality parts that the company tests and trials "in the field" before allowing them to be used in the Deprox system. Holding the manufacturing and servicing facility in the UK, the Company maintains strict quality control standards and regularly audits to ensure a continuum of improvement in the manufacturing process.

2.3 Method of Disinfection

Please provide a detailed description of the disinfection method

2.3 Bidder response

The Deprox's method of disinfection can be broken down into three main components:

1. **Vaporisation Method – The Deprox's unique and patented method of vaporisation combines the use of high frequency ultrasonics and a modulated air flow technology to create the Hydrogen Peroxide Vapour (HPV) as detailed in Appendix 24 and supported by our Patent Certificate. Without the need to add heat or pressure, the Deprox's ultrasonic technology generates a vapour in a process known as "cavitation". By vibrating the hydrogen peroxide solution at ultra-high frequencies (1.7 MHz), cavities are created within the solution, which then fill with bubbles of hydrogen peroxide vapour, rather than air. An air-flow is then created to extract these bubbles of hydrogen peroxide vapour from the solution, drawing them through a selection process to ensure that only highly mobile, highly active hydrogen peroxide vapour is introduced into the treatment environment. This leading technology is what enables the Deprox to create a 6-Log reduction of pathogens whilst only using a 4.9% hydrogen peroxide solution, and without need to add heat or pressure to the process.**
   A traditional method of vaporisation using a 'flash heat' technology requires a high concentration (approx. 30-35%) hydrogen peroxide solution to achieve a 6-Log reduction, as heating the chemical makes it less active as a decontaminant. The higher concentrations used (up to 1000ppm in vapour-phase) can result in potential complications in the hospital setting, including training, health & safety, storage and transportation of solution, as well as compatibility with the environment and patient/medical equipment. More recently, other 'fogging' or aerosolisation technologies have been developed. These tend to use lower concentration (5-10%) hydrogen peroxide which is injected at high pressure into the room through a nozzle that atomises the solution.

However studies have shown that they do not have a consistent level of efficacy due to the directional injection of hydrogen peroxide droplets into the environment and subsequent insufficient assurance of a homogeneous diffusion.

2. **Consistent Disinfection Process - Designed for use in the healthcare setting, the Deprox technology is operated using a single start button. This enables the Deprox to be used by 'band 1' operators and fully integrated into the routine use of this technology. Unlike traditional HPV or AHP technologies that are operated and controlled by an in-put measurement, calculated by the dimensions of the room/area, the Deprox incorporates the Process Analyser which measures the output of the Deprox throughout the process, thus removing the margin for operator error. Monitoring all influential environmental parameters, including temperature, humidity, concentrations of hydrogen peroxide and the effects of absorbent materials, the Process Analyser communicates with the Deprox's on-board computer system to ensure that the process is effective every time, and is not dependent on the inputs of operatives.**
3. **Track and Trace and Reporting – In order to record the process outputs of each Deprox decontamination process, the ProxLog device records in real-time all process parameters achieved in the room. Displaying these on the system's colour touch screen, the ProxLog records this data, meaning it can be easily downloaded, stored, analysed and reported.**

Added Benefit:
Hygiene Solutions are constantly developing technology, accessories and systems to support the integration of our family of decontamination systems into everyday routine. From experience, Hygiene Solutions have found that partnering with NHS acute hospitals to develop these accessories, technologies and systems is an efficient way of ensuring solutions to the real problems are developed rather than development for its own sake. Hygiene Solutions would welcome the opportunity to work collaboratively with The Sheffield Teaching Hospitals NHS Foundation Trust in the development which could qualify for Innovation Funding of around 60% of the capital cost of this contract. If the Trust would like more clarification on this point, please contact Tom Lister on 0845 270 6690 or tom.lister@hygienesolutionsuk.com to discuss this further.

2.4 Health & Safety

Please provide a Health and Safety statement, regarding the operation of

the disinfection equipment, and the use, storage and handling of chemicals.

2.4 Bidder Response

Hygiene Solutions believe Health & Safety of our equipment and systems is extremely important to ensure the safety of our operators, staff, patients and visitors is not compromised. Please find in Appendices 32,33 and 3 the Risk Assessment, Method Statement and COSHH Materials Safety Data Sheet respectively.

Operations of disinfection equipment:
Hygiene Solutions will work with the Trust to ensure all operators receive a full induction into the safe and effective use of the Deprox system. One of the Company's beliefs is that implementing the technology is just as important as creating leading technology in the first instance, and ensuring the safe use of this equipment is a top priority. Training is provided on both a planned and an ad-hoc basis, free of charge, to ensure that all staff are continually refreshed in the safe operation of the system, taking into account shift changes and staff turnover.
The Deprox system itself has been designed with safety at the centre of all design features. As part of the initial user-group trials, analysis of the biometrics of typical cleaning staff, and advice from moving and handling consultants, influenced the height and shape of the Deprox's handle, balance of weight, steering mechanism and dimensions. This ensures that the system is safe and easy to move, reducing the opportunity for any work-related stress from moving and handling.

The Deprox's Process Analyser measures in real-time the environmental conditions in order to communicate to the operative when the room may be entered, removing the need to enter the room without assurance that it is safe to do so. The Process Analyser also has an inbuilt leak detection system, which is designed to fail the process out should it detect any leaks from the treatment environment, a key safety feature for users and other personnel in the vicinity.
With a remote Process Monitor, the Deprox process is activated from outside the room, and the stage of the process is clearly communicated to the operative without the need of entering the room, protecting the operative from exposure to unacceptably high levels of hydrogen peroxide vapour. Furthermore, the remote emergency stop button allows the user to terminate the process from outside the room, with no need to be exposed to the H2O2 vapour to do so.
The DoorBar system has been designed to protect other persons in the vicinity, particularly bearing in mind children and vulnerable adults.

Manufactured from two pieces of extruded plastic, the DoorBar has been designed to secure doors with no locking system, preventing access to the room during the treatment process.
A measure is the Deprox Door Warning Sign, which provides a visual warning to all in the area of the conditions of the Deprox process, with information provided for emergency services should they need to access the room, e.g. in the event of a fire. A further fall-back measure is a check sheet incorporated on the reverse of the sign, ensuring that the operative sets up the process safely and effectively every time.

The use, storage and handling of chemicals:
Using 4.9% hydrogen peroxide solution (Deproxin), the Deproxin is below 'LQ' regulations, meaning it is not classed as a hazardous chemical, and has no specialist storage, handling or transportation requirements, see Appendix 3 for MSDS and Appendix 14 for excerpts from the User Manual. As detailed in the User Manual, Appendix 14, Hygiene Solutions recommend for Deproxin to be stored in their sealed containers until use away from direct sunlight and extremes of temperature, between 5 and 50 degrees. The Deproxin chemical is transported in boxes of 4 x 2ltr bottles, meaning they are light weight and easy to lift and handle, which helps to prevent any opportunity for strain injury.

2.5 Moving & Handling of the Disinfection Equipment
Please provide details of any moving and handling restrictions whilst using the equipment. For example, restricted tilt angle, etc

2.5 Bidder Response

With the user in mind, and on consultation with moving and handling specialists, the Deprox system is placed on four steering casters, meaning that the weight is borne by the chassis itself, with no need to maintain a tilt angle. This gives the user optimum steering ability, only needing to exert force to push and steer, rather than bear any weight too (see Appendix 39). The height of the handle, as well as balance of weight in the system, has been especially designed for the typical biometrics of regular cleaning staff to ensure ease of use and to minimise any opportunity for work-related stress from moving and handling. The size and design of the casters have been particularly engineered to ensure robustness and minimum friction for use on smooth hospital floors, making the Deprox easy to transport around the Trust's large hospital estate. As the Deprox system incorporates both injection and deactivation technology, only one piece of equipment is needed for the process, making this a single-person operation.
Hygiene Solutions have also developed a PortaStore system, giving a

portable storage solution for additional equipment and consumables for larger projects, e.g. whole-ward decontamination.
As the Deproxin chemical solution is only 4.9%, it is not classed as a hazardous chemical, and therefore requires no specialist storage or handling facilities, making it easier to transport around the hospitals.

2.6 Equipment Storage Requirements
Are there any specific storage requirements for the equipment? For example, ambient temperature, humidity, etc?

2.6 Bidder Response

The Deprox system is used in hospitals around the world, and can be stored in facilities at typical ambient conditions of 5-50ºC and relative humidity up to 90%. Hygiene Solutions recommend that the equipment is stored in a secure area, away from the general public and un-trained staff.

Added Benefit:

Hygiene Solutions have designed a "PortaStore" system, providing storage for consumables and additional equipment that can then be transported directly to the ward for larger projects. This has been designed to ensure optimum efficiency ratios of equipment and consumables to Deprox systems for use around the Trust, ensuring the Trust does not over-stock these items in order to improve efficiency and reduce waste and damage.

2.7 Consumables Storage Requirements
Are there any specific storage requirements for the consumables? For example, ambient temperature, humidity, COSHH regulations, etc?

2.7 Bidder Response

Designed for use around the world, the Deprox consumables, including Deproxin refill solution (4.9%), can be stored in ambient conditions of 5-50ºC and relative humidity up to 90%. Hygiene Solutions recommend that the equipment is stored in a secure area, away from the general public and un-trained staff.

Due to its low concentration, the Deproxin chemical is classed as non-hazardous, meaning there is no requirement for specialist HazChem storage or handling facilities. The Materials Safety Data Sheet is included in Appendix 3.

Added value

Stock Management - Hygiene Solutions are able to manage the stock for the Trust, ensuring only the required amount of product is stocked and any stock is routinely rotated. This reduces any risks of stock deterioration, and inefficiencies associated with overstocking. Hygiene Solutions would analyse the usage throughout the Trust and recommend a stock level. This would then be routinely checked by a Hygiene Solutions Engineer and any shortages reported to the authorised contact with the Trust for authorisation and purchasing.
Emergency Supply – In the event of the Trust running out of consumables or supporting equipment, Hygiene Solutions will support the Trust through our 24hr Helpdesk, who are able to supply additional equipment and consumables within 4 hours, 365 days a year.

2.8 Chemical Reservoir
Please describe the disinfection equipments' reservoir system, particularly in relation to the low level warning system

2.8 Bidder Response

The Deprox system is fitted with a reservoir for the containment of up to 13 litres of Deproxin refill solution, to ensure there is a backup supply for any process. Deproxin refills are provided in 2ltr bottles, and typically last for approx. 3 processes, depending on volumetrics and ambient conditions of the process.
In the setup stage of the process, the Deprox takes the operator through a series of safety checks. Before starting, the Deprox system will always ensure it is full of Deproxin refill, and prompts the operative to insert a refill if needed. If a refill is needed, the on-board computer system will not allow the operator to start the process until the unit has been filled. The Deprox system can not run out of fluid, as it always has a backup supply of at least 10 litres, ensuring this does not affect the process. This storage system is fully valved to ensure there is no leakage and also to give assurance that there is no degeneration of the chemical whilst in storage.
The Deprox is fitted with a keyed refill port, meaning only the correct fluid can be inserted to ensure safety and efficacy. With no need to decant any fluid, each refill is inserted into the system, with no potential for operator contact with the fluid. This immediately drains directly into the storage reservoir to ensure the system can be transported safely with no risk of leakage, and also to preserve the effectiveness of the fluid. Once used, the refill canister can be disposed of in the normal waste stream, as it is classed as non-hazardous, and is fully recyclable

2.9 Treatment Volume
Please specify the volume, in cubic meters, that can be disinfected per

disinfection cycle.
Scoring: Largest Volume = 5, Second Largest Volume = 3, Third Largest Volume = 1, Remainder = 0

2.9 Bidder Response

Each Deprox system can treat up to 380m3, with the ability to easily use multiple systems in tandem for larger areas, for example a whole ward can be decontaminated simultaneously. As each system has its own Process Analyser, multiple units can be deployed in the same area, with the analysing function ensuring that the entire process is effective, adjusting to the specific volumetrics of the treatment and process parameters with no need of operator-dependent programming. Larger processes do not require any additional set up from the operatives, and an entire ward decontamination project is activated with the same "single start-button" operation, ensuring consistent efficacy in all situations.
The Deprox system does this by monitoring only the environmental parameters and outputs of the equipment rather than traditional decontamination systems which rely on the operator inputs to carry out a process. From the press of a single start button, the Deprox system will; measure the parameters of the space it is treating (including relative humidity, temperature etc), deliver a calibrated dose of hydrogen peroxide vapour to the space, continue to measure those parameters for the duration of the decontamination cycle, ensure that the correct levels to achieve the desired log6 reduction is achieved and finally monitor the deactivation phase in preparation for re-entry to the room. Due to this dynamic measuring and vapour delivery method, the maximum dosage volumes may vary as the system takes into account absorbent materials in the space.

In contrast, some traditional hydrogen peroxide systems require the operator to manually enter the room dimensions into the system itself to control the dose of aerosol into the space. This control method is hugely dependent on the operator inputting the correct dimensions and does not take into account any other variables such as absorbent materials in the room, temperature or operator error, leaving the end result vulnerable to variation in efficacy and potential for risk to the next patient.

The system has no minimum treatment volume i.e. it can treat areas as small as single toilets. Due to the fact that the Deprox does not add pressure to inject the hydrogen peroxide vapour, it can be used in close proximity to other surface. With its own built-in deactivation technology, the Deprox system is used as a stand-alone unit, and does not need a separate deactivation unit, making smaller areas possible to

decontaminate.

2.10 Energy Consumption
Please specify the energy consumption, in KWh, per disinfection cycle
Scoring: Lowest Consumption = 5, Second Lowest Consumption = 3, Third Lowest Consumption = 1, Remainder = 0

2.10 Bidder Response

The Deprox system typically runs a process using approx. 2.98KWh. Each cycle is unique, with the system automatically calibrating to ensure an effective process is run every time, taking into account the volumetrics, humidity, absorbency and temperature of the room, meaning that power consumption will differ from process to process.

2.11 Electrical Supply
The disinfection equipment shall be powered from a standard 13 Amp 3 pin UK mains power socket to BS1363. Please confirm the electrical supply required

2.11 Bidder Response

The Deprox system is manufactured for a 240v power supply, and is fitted with a 13amp 3 pin plug, compliant to BS1363 standards. As part of the Hygiene Solutions routine service, systems are recalibrated and PAT tested to ensure their electrical safety before their return to the Trust.

2.12 Power Cable
Please state the length of the power cable, (minimum length 10m) supplied with the equipment.
Scoring: Longest Cable = 5, Second Longest Cable = 3, Third Longest Cable = 1, Remainder = 0

2.12 Bidder Response

The Deprox system is fitted with a 15 meter cable to enable users to operate the system without close proximity to a power supply. The Company also provides a specialist tape that has been designed to stick the cable to floors to prevent a trip hazard without leaving a residue afterwards.

2.13 Emergency Manual Override
The disinfection equipment shall have a remote manual override facility,

including an emergency stop function, in order to operate the disinfection equipment, in the event of an emergency. Please submit details of this facility with the tender return

2.13 Bidder Response

The Deprox system is controlled remotely by the Process Monitor (see Appendix 19), which is the main operator console. The Deprox process can only be started when activated by the key switch situated on the Process Monitor, meaning that the operator is outside of the room when the process commences. The Process Monitor has easy-to-understand, colour-coded lighting displays to show what stage the process has reached, meaning the operator can view at a glance whether or not they may enter the room. Prominently located on the Process Monitor is an emergency stop button, meaning the process can be terminated at any stage from outside of the room without the operative having to access the treatment area itself, at any stage of the process. The Monitor's colour-coded lighting display then informs the operative when the chemical has deactivated to a level at which they may re-enter the room.

2.14 Chemical Consumables

2.14.1 Details of Chemicals & Product Data / Safety Sheets

Please submit a list of the disinfection chemicals used, along with copies of the chemicals' Product Data / Safety Sheets, and COSHH information Please also provide a specification of the strength of disinfectant solution in use and the other active components of the disinfectant.

2.14.1 Bidder Response

The only chemical that is used by the Deprox system (Deproxin) is a 4.9% hydrogen peroxide concentration, with a <0.2% silver cation content. Please find in Appendix 3 the Materials Safety Data Sheet for the Deproxin chemical.

As the Deprox system has a "keyed" refill port, the only chemical it will allow to be inserted into the system is the specific Deproxin chemical, giving assurance of safety and effectiveness of each operation, as well as the longevity of the Deprox system.

2.14.2 Chemical Shelf Life

Please state the shelf life of the consumable chemicals used.
Scoring: Longest Shelf Life = 5, Second Longest Shelf Life = 3, Third Longest

Shelf Life = 1, Remainder = 0

2.14.2 Bidder Response

The Deproxin chemical has a 36 month recommended shelf life.

Added Benefit:

Hygiene Solutions will work with Sheffield Teaching Hospitals NHS Foundation Trust with LEAN experts to work out an optimum stock level to ensure an efficient stock turnover, delivery quantities and schedules and effective storage means. This will ensure that there is significantly less opportunity for damaged or out-of-date stock, will reduce storage requirements and improve efficiency.

2.15 Training Provision

2.15.1 Domestic Services Staff
Please submit details of the training provided to Domestic Services Staff

2.15.1 Bidder Response

Hygiene Solutions believe that implementing our technology into hospitals is equally important as creating that technology. For this reason, we work closely with all levels of staff throughout the organisation. Our training consists of a theory and practical-based assessment, leading to operators being certified to use the Deprox. This ensures that only competent personnel are authorised to use the system. We will also perform audit and refresher training at the Trust as part of our commitment to best practice.
By assessing trainees on both a theory and practical based assessment, Hygiene Solutions are able to determine whether the trainee has an adequate comprehension of the methodology used, the surrounding issues and safety considerations, and their responsibilities whilst operating the Deprox. With the use of a question and answer booklet, we are able to monitor each individual trainee's understanding of these points. Only on successful achievement of this booklet are operators certified to use the Deprox system, meaning that only those deemed to be competent are certified to use the system.
The company recognises the challenges faced with staff turnover and different shifts, and for this reason, Hygiene Solutions provide training on an ad-hoc basis, for all shifts. In addition, a six month refresher programme will be implemented to ensure all operatives are fully competent and confident in the use of the Deprox system.

2.15.2 Nursing Staff

Please submit details of the training provided to Nursing Staff

2.15.2 Bidder Response

Hygiene Solutions believe that implementing our technology into hospitals is equally important as creating that technology. For this reason, we work closely with all levels of staff throughout the organisation. Should the Trust make the decision to involve nursing staff in the training programme, the company will involve them in product-specific training as detailed in 2.15.1. The Company will also involve nursing staff in communications, including attending link-nurse events, matron's forums and sisters' meetings to ensure the use of the Deprox system is effectively communicated throughout the whole of the organisation. Hygiene Solutions will run a six-monthly public and staff awareness campaign to champion the work of the team implementing the Deprox system, which could involve activities such as: posters in main entrances; support from Hygiene Solutions' team to reach out to the public and staff; handing out visitor and staff-focused information on the system and how it is used at Sheffield; screen savers throughout the organisation; and articles on the Trust's intranet and in the Hospital's "Link" magazine.

2.15.3 Maintenance Staff (Deleted Not Required, maintenance to be provided by the successful bidder, either on site, or "Swap Out" service)

2.16 Trade References

The bidder must provide at least three satisfactory references from past clients and the contact method by phone and email and post. ***Please provide details of trade references with the tender return***

2.16 Bidder Response

Please find in Appendix 12 testimonials from some of our clients. Also included below are contact details of persons who are happy to speak with the Trust about their experience with Hygiene Solutions:

Name	Title	Trust	Contact Details
Dr Nick Brown	Microbiologist and Infection Control Doctor	Cambridge University Hospitals NHS	nicholas.brown@addenbrookes.nhs.uk 01223 245 151

		Foundation Trust	
Karen Older	Hotel Services Manager	Cambridge University Hospitals NHS Foundation Trust	karen.older@addenbrookes.nhs.uk 01223 348948
Margaret Graham	Trust Coordinator	Cambridge University Hospitals NHS Foundation Trust	margaret.graham@addenbrookes.nhs.uk 01223 274782
Matthew Reid	Infection Control Lead Nurse	Royal Wolverhampton Hospital NHS Trust	matthewreid@nhs.net 01902695293
Tina Tipton	Domestic Services Manager	Royal Wolverhampton Hospital NHS Trust	tinatipton@nhs.net 01902307999
Ian Allen	Director of Estates and Facilities	Luton and Dunstable Hospital NHS Foundation Trust	Ian.allen@ldh.nhs.uk 01582 497400
Hazel Gray	Deputy DIPC	Hampshire Hospitals NHS Foundation Trust	hazel.gray@hhft.nhs.uk 01256 473202 (4446)
Mark Edwards	Director of Specialist Medicine	Central Manchester University Hospitals NHS Trust	Mark.edwards@cmft.nhs.uk 0161 276 1234
Gillian Hodgson	Divisional Head of Nursing – Infection Control	Leeds Teaching Hospitals NHS Foundation Trust	Gillian.Hodgson@leedsth.nhs.uk 01133 922 691
Liz Collins	Head of Nursing for Infection Control	University Hospitals of Leicester NHS Foundation Trust	elizabeth.collins@uhl-tr.nhs.uk 0116 2585078

	3.0 MAINTENANCE & SUPPORT
	3.1 Manufacturers Warranty **3.1.1 Length of Warranty** Please state the minimum manufacturer's warranty available to the Trust Scoring: Longest Warranty = 5, Second Longest Warranty = 3, Third Longest Warranty = 1, Remainder = 0 **3.1.1 Bidder response** **Hygiene Solutions will support the Trust's Deprox systems with a 7 year Warranty, which covers the cost of parts and labour for any defects arising from faults with manufacture or servicing. The systems will also be backed by our 12 year "product support plan" which ensures that they are serviced for this duration, and will not be taken out of service due to obsoletion of components in this time.** **3.1.2 Warranty Terms & Conditions** Please provide details of the warranty provided, highlighting the major benefits and exclusions **3.1.2 Bidder response** **The Hygiene Solutions Warranty covers the cost of parts and labour for all faults or damages arising from defects in manufacture or service. This will be supported for 7 years from date of delivery.** **3.2 After Sales Service & Maintenance, Technical Support & Repair** **3.2.1 After Sales Services & Maintenance** Please provide details of the local equipment service centre, method of contact, and the types of services offered. **3.2.1 Bidder response** **Hygiene Solutions cover the whole country on a four hour turnaround time, operated from a 24 hour Customer Helpdesk. This means that in the instance of a system failure or service requirement, Sheffield Teaching**

Hospitals can contact the 24 hour helpline, any time of the night or day, any day of the year. This equipment will then be swapped out within four hours with equipment from the Hygiene Solutions Customer Support Fleet, to ensure any downtime is kept to a minimum. The equipment is then taken back to Hygiene Solutions' engineering laboratory where it will be serviced and re-calibrated, before return to the Hospital.

3.2.2 Technical Support
Please provide details of the technical support available to users of the equipment

3.2.2 Bidder Response

All pieces of equipment provided by Hygiene Solutions covered by the Gold Service Level Agreement are labelled with the 24 hour Helpline number in a prominent position, meaning that the operative is able to contact technical support any time of the night or day, weekends and bank holidays, from the location in which they are working. The Technical Support Team will then guide them through any issues for fault remediation and technical advice. Should the need arise, i.e the fault cannot be remedied by the operative, the query would be escalated to a swap-out, which would take place within four hours.

3.2.3 Field Engineers
Please state the number of field engineers, based, and available to the Trust, within a thirty mile radius of the Central and Northern Campuses
Scoring: Most Number Available = 5, Second Most Number Available = 3, Third Most Number Available = 1, Remainder = 0

3.2.3 Bidder Response

Hygiene Solutions have a customer support team of 14 engineers responding to any requests within 4 hours anywhere in the UK on a 24 hour basis. Typically, up to four of these would be within a 30 mile radius of the Trust.

3.2.4 Response Time to Emergency Call Outs
Please quote your organisations fastest response time to emergency call outs
Scoring: Shortest Response Time = 5, Second Shortest Response Time = 3, Third Shortest Response Time = 1, Remainder = 0

3.2.4 Bidder Response

With the Gold Service Level Agreement, Sheffield Teaching Hospitals would

be supported by Hygiene Solutions' 4 hour on-site response service 24 hours per day, 365 days per year. This would cover the Trust both for the swap out of any faulty equipment, and also for up-scaling of any decontamination efforts, i.e. with rental of additional equipment or the Hygiene Solutions Managed Service.
In the instance of Managed Service, from The Trust dialling the 24 hour Helpline, an engineer would be on site within 4 hours equipped with all necessary equipment and consumables to carry out decontamination services as requested.

3.2.5 Spare & Consumable Parts
Please provide a list of commonly used spare and consumable parts. Please also enter the spare and consumable parts, and prices, where indicated, on the Pricing Schedule Spreadsheet

3.2.5 Bidder Response

A list of spare parts commonly used in servicing are as follows:

- **Piezo electric ceramic plates**
- **Electrical Transistors**
- **Electrical Resistors**
- **In-line Filter and tubing**

Hygiene Solutions does not charge for the replacement of any of these parts for any Deprox systems covered by the Gold Service Level Agreement (see 3.2.7).
In order to reduce downtime in any servicing, replacement of any spare and consumable parts is carried out in-house in Hygiene Solutions' Engineering Laboratory, meaning that the Trust will not be left without working equipment whilst waiting for these components. With a four hour swap-out time, any system requiring servicing or any of these spare parts will be taken away from the Trust and swapped with a system from the Hygiene Solutions Customer Services fleet. This ensures that the Trust is always fully supported with working equipment, all hours of the day or night, 365 days per year.

3.2.6 Lead Time for Supplying Spare & Consumable Parts
In order to keep downtime, due to faults, of the disinfection equipment to a minimum, a short lead time on the supply of spare and consumable parts, is required. Please state the typical lead time
Scoring: Shortest Lead Time = 5, Second Shortest Lead Time = 3, Third Shortest Lead Time = 1, Remainder = 0

3.2.6 Bidder Response

Where any service, replacement of parts or repairs are required, the Hygiene Solutions Rapid Response Team will swap out any equipment within 4 hours of receiving a call via the 24 hour Helpdesk on the Gold Service Level Agreement. This means that the Trust will be fully supported with functioning equipment, and will not be affected by turnaround time on any spare parts or consumable items. Hygiene Solutions then ensure that the Trust's own equipment is returned swiftly for consistency. All equipment is tracked and traced centrally via the Hygiene Solutions Customer Services Portal, ensuring that The Trust's equipment will always be kept separate from the Customer Services Fleet.

3.2.7 Maintenance & Support Plans

Please provide details of available maintenance and support plans for the equipment

3.2.7 Bidder Response

Hygiene Solutions provide a full maintenance service for all equipment, which includes routine service and calibration (every 6 months or 500 operating hours). Routine servicing includes the replacement of any wearing parts, calibration of the Process Analyser and testing of the equipment. Whilst the Trust's systems are being serviced, swap-out equipment from the Customer Services Fleet is provided, ensuring that the Trust's capacity is not diminished throughout this period. Different tiers of Service Level Agreement available to the Trust are listed below.

The Bronze Service Level Agreement consists of:

- **72 hour response time**
- **Swap-out equipment to keep you going**
- **Free collection and delivery of equipment from site**
- **7:00-17:00, Monday-Friday help line access for operational and technical assistance**
- **Inclusive of:**
  - **Routine service – every 500 hours or 6 months**
  - **Fault remediation**
  - **Operator training up to 20 operators per annum**
  - **Repair (time and parts)**

Silver Support Cover consists of:

- **48 hour response time**
- **Swop-out equipment to keep you going**

- **Free collection and delivery of equipment from site**
- **24 hour help line access for operational and technical assistance**
- **Inclusive of:**
  - **Routine service – every 500 hours or 12 months**
  - **Fault remediation**
  - **Operator training up to 20 operators per annum**
- **Chargeable:**
  - **Repair (time and parts)**

Gold Support Cover consists of:

- **4 hour response time**
- **Swop-out equipment to keep you going**
- **Free collection and delivery of equipment from site**
- **24 hour help line access for operational and technical assistance**
- **Inclusive of:**
  - **Routine service – every 500 hours or 12 months**
  - **Fault remediation**
  - **Operator training up to 20 operators per annum**
  - **Repair (time and parts)**

3.3 Time in Service

Please state how long the particular equipment offered has been in production and sold by your organisation

3.3 Bidder Response

The patented technology used in the Deprox system has been in production and sold by Hygiene Solutions for 7 years. Hygiene Solutions continually strive to improve the usability and functionality of this technology, so this has been made commercially available in three different models to date, the most recent one being sold by the company for 1 1\2 years. Hygiene Solutions would welcome the opportunity to work collaboratively with Sheffield Teaching Hospitals NHS Foundation Trust in the further development of this technology, with a view to becoming a "Centre of Excellence" site, benefiting from being amongst the first to work with the Company in any new developments and technological improvements. As a collaborative site, up to 60% funding is available for the Deprox systems; please see the costing schedule with regards to this, and contact tom.lister@hygienesolutionsuk.com with any queries.

3.4 Post Manufacture Spares & Support

The Trust requires that spare parts and technical support, is available for the equipment purchased, for a minimum of ten years, after production of the particular model has ceased.

Scoring: Spares and Support available for the longest time = 5, Spares and Support available for the second longest time = 3, Spares and Support available for the third longest time = 1 Remainder = 0

3.4 Bidder Response

Hygiene Solutions are committed to the longevity of the Deprox systems, and for this reason, the company has a documented 13 year "product support plan" to ensure that the systems are fully serviced in this timeframe. Whilst the systems will be updated from both a software and hardware perspective in this timeframe, the company will ensure that the systems are fully serviced and do not come out of operation due to obsoletion of parts. These software upgrades and minor component revisions are all fully included in the cost of the Gold Service Level Agreement (see section 3.2.7)

4.0 OPERATIONAL, TRIALS & DELIVERY

4.1 Product Demonstration & Trials

The Trust requires that organisation's who have submitted a compliant bid, shall make available an example of the equipment tendered, so that the Trusts staffs may carry out trials of the equipment, and award scores, in accordance with the following criteria.

1.5 Ease of Operation
1.6 Operating Instructions
1.9 Ergonomic Handling
1.10 Machine Dimensions & Weight
1.11 Preparation Time
1.14 Disinfection Cycle Time
1.15 Reoccupation Time
1.19 Vibration & Noise Levels
4.2 Operation by the Trust's Staff

Please confirm, that if required, an example of the equipment tendered may be trialled by the Trust

4.1 Bidder Response

Hygiene Solutions would welcome the opportunity to provide equipment to Sheffield Teaching Hospitals in order to allow operatives to experience the system's easy-to-use features and evaluate the system in use. One of

the Company's fundamental beliefs is that the implementation of the system is just as important as creating leading technology in the first instance, and Hygiene Solutions would be glad to demonstrate our commitment to ensuring the operational ease of use and acceptance throughout all levels of staff in the Trust.

4.2 Operation by Trust Staff

Please confirm that the equipment offered, is suitable for operation by the Trust's staff. Alternatively, would the equipment offered need to be operated by the suppliers staff, due to technical and operational issues? (please also refer to 4.1 Product Demonstration & Trials)

4.2 Bidder Response

Hygiene Solutions' Deprox™ system has been specifically designed for ease of use in hospitals by regular cleaning staff on a routine basis; in the initial design stages, one of the main outcomes was to ensure that the system could be operated by a band 1 cleaner and give consistent results. Subsequently, the system incorporates many design features to that end. Firstly, the requirement for operator input has been minimised with the use of "self-calibration" technology, meaning that there are no input requirements from the operator; instead, the Deprox's Process Analyser monitors all environmental variables which determine the volume of hydrogen peroxide needed to achieve optimum decontamination. This means that, irrespective of operator skills, ambient temperature, ambient humidity and absorbent factors in the room, the Deprox will achieve the same high level of disinfection on each process, regardless of the location, its contents or the operator. As the system is self-calibrating, the margin for operator error is minimised. With a single start button operation, the Deprox is suitable for use by non-skilled staff within the organisation, and requires no technical operator input.

Additional accessories have also been developed for use in conjunction with the Deprox in order to make the process easier and more efficient to carry out. These are described in more detail in section 1.5 and include the Ventilation Restriction Kit, Fire Detector Cap Kit and DoorBar. These ensure the simple and rapid isolation of fire detectors and ventilation, as well as securing the door to ensure it is not accessed during the time of the decontamination process.

4.3 Delivery Lead Time

Please quote a lead time, from receipt of order, to delivery to the Trust's premises, of the disinfection equipment

Scoring: Shortest Lead Time = 5, Second Shortest Lead Time = 3, Third Shortest Lead Time = 1, Remainder = 0

4.3 Bidder Response

Hygiene Solutions are able to ensure delivery of the Deprox equipment within 1 week (7 days) of receipt of order.

The company has already assigned a key account manager to initiate the Hygiene Solutions Rapid Implementation Process (RIP) which includes:

- **Meet with key stake holders including Infection Control, Estates and Facilities, Domestic Services, Fire Officer, Nursing Directorate and Ward Staff**
- **Review and sign-off of risk assessments**
- **Train operatives on all necessary shifts to operate the Deprox**
- **Assist operatives on site with Deprox processes for the necessary period of time to ensure all are entirely confident with the process**
- **Analyse stock levels, usage, peaks and troughs of demand and work with LEAN experts to work out efficient stock levels, quantities and frequency of consumable orders. Ensure stock is stored efficiently to reduce waste.**
- **Establish service programme on online portal shared to all necessary stakeholders within the Trust.**
- **Establish communication programme with all key stakeholders to ensure the successful delivery of service to the Trust.**

5.0 EQUIPMENT LEASE & MANAGED SERVICE OPTIONS

5.1 Lease Option

Is the equipment offered available to the Trust via a lease? If yes, please provide details of the lease available

5.1 Bidder Response

Implementation and patient benefit is at the heart of Hygiene Solutions' customer-focussed development, and ensuring the economic viability of the Deprox technology is a key feature of this. By offering a comprehensive lease option, Hygiene Solutions has helped several Trusts to implement the Deprox technology without the financial impact of a large initial outlay.
Hygiene Solutions leasing works like this: the company estimates a future residual value of the equipment at the end of the lease term. The cost is then divided over the years of the lease agreement, giving the Trust the

option to make a payment of the residual value of the systems at the end of the agreement and take ownership, or Hygiene Solutions receive the systems back. This means that the Trust has all of the benefits of owning the systems without the initial capital outlay of the purchase option.

5.2 Managed Service Option

Is the equipment offered available to the Trust via a managed Service Option? If yes, please provide details of the Managed Service available

5.2 Bidders Response

Hygiene Solutions are proud to be a managed service partner to leading hospitals around the world, and would welcome the opportunity to partner with Sheffield Teaching Hospitals NHS Foundation Trust to offer this service.

The Hygiene Solutions Managed Service includes:

- **Provision of on-site decontamination engineers (option available for 24/7 365 days per year)**
- **Provision of all Deprox equipment**
- **Provision of all supporting equipment, including Ventilation Restriction Kits, Fire Detector Cap Kits and DoorBars**
- **Provision of all necessary consumables, including Deproxin refill solution, Deprox Vapour Impermeable Tape, Door Warning Signs**
- **Provision of any necessary Vapour Impermeable Sheeting and erection where necessary, e.g. for the decontamination of open-ended bays**
- **Regular communication with all stakeholder groups, including Domestic Services, Infection Control, Estates and Facilities etc**
- **Provision of secure Web-based portal giving a daily report of activities throughout the Trust, shared in to all necessary stakeholders**
- **Option of van-based solution, meaning no storage is required in the Trust**
- **Implementation of proactive decontamination schedule**
- **Support with Study Days and Trust-wide communication**

Case Study: University College London Hospital NHS Foundation Trust

Beds: c1800
Location: The Tower, Euston Road, London; The Podium, Euston Road, London; Elizabeth Garrett Anderson Wing, Euston Road, London; The Heart Hospital, St Anne's Square, NW1, London; The Macmillan Cancer Centre, NW1, London, The Royal National Throat, Nose and Ear Hospital, NW1, London; National Hospital for Neurology and Neurosurgery, NW1, London

Profile: One of the largest hospital Trusts in the UK based in Central London providing acute and specialist services

Hygiene Solutions Partnership:

Hygiene Solutions work in collaboration with the Trust to provide a 365 day per year managed decontamination service using the Deprox technology. Analysing the time of peak demand, the Company works with the Trust outside of normal working hours to ensure a seamless service is delivered, with the ability to increase the hours provided to 24 hours per day in periods of specific demand. With a van-based solution, the company's engineers are able to provide the service across the Trust's multiple sites, also removing the need for on-site storage of the equipment.

On a daily basis, a report is sent to Infection Control, Domestic Services, Estates and Facilities and the Bed Management Team of activities in the Trust to ensure all key stakeholders are regularly informed of activity. Hygiene Solutions also have a weekly meeting with these stakeholders to ensure all opportunities for proactive decontamination are realised.

Since implementation, Hygiene Solutions have worked with the Trust to create a "Red, Amber, Green" cleaning matrix to ensure the correct level of cleaning and decontamination is applied for each discharge, based on the risk of the infectious status of the previous patient. This has helped to streamline communications throughout the whole Trust and ensure that each room is cleaned and decontaminated to the correct level every time.

The company has also worked to implement a proactive decontamination programme, which has included theatre areas over the Christmas bank holiday period, whole-ward decontamination projects after refurbishment works, every toilet and sluice in the hospital and almost all ward equipment in 9 months.

Environmental testing shows that the overall bioburden in the Trust has dropped significantly in the months since commencement of proactive decontamination, and the fully integrated support given by Hygiene Solutions has helped to improve standards of patient safety.

Hygiene Solutions would envisage working with Sheffield Teaching Hospitals NHS Foundation Trust to evaluate the hours that a Managed Service would be of most benefit to the Trust, i.e. when there are the most infectious discharges, but for the purpose of this tender, a cost for this service to be provided between 09:00 – 17:00, Monday – Friday is given.

5.3 Maintenance & Repair

The maintenance and repair of the equipment shall be included in the agreement. Please confirm that the maintenance and repair, of the equipment, is included within the Lease and Managed Service agreement,

and the price offered?

5.3 Bidders Response

With the Managed Service agreement, all services are provided by Hygiene Solutions, including the provision of Deprox equipment in full working order. Owned by Hygiene Solutions, the Company fully maintains this equipment with routine (6 monthly) servicing and calibration, as well as any necessary parts repairs, at no additional cost to the Trust.
The Lease agreement is effectively an alternative to the Trust purchasing the equipment, with specific Deprox systems assigned to the Trust. Covered by the Hygiene Solutions Gold Service Level agreement, the Trust would benefit from the following:

- **Use of the 24 hour Helpline**
- **4 hour response time, any time of the day or night, 365 days per year**
- **Swap out service with Customer Services fleet Deprox systems**
- **Fault remediation and repairs**
- **Parts and labour for all repairs, unless arising from avoidable operator damage**
- **Deprox Software upgrades**
- **Routine servicing and calibration**

The Service Level Agreement, detailed in section 3.2.7, determines turnaround time on any swap outs. Pricing information is included in Part One, the Pricing Schedule

5.4 Chemical Consumables
The chemical consumables shall be included in the agreement. Please confirm that the chemical consumables for the equipment, are included within the Lease and Managed Service agreement, and the price offered?

5.4 Bidder Response

Hygiene Solutions will provide all consumable items for both the Lease and Managed Service option, including Deproxin refill solution, Deprox Vapour Impermeable Tape and Door Warning Signs. For the Manged Service Option, this is fully included in the service provided to the Trust, and has no additional cost. In the instance of the Lease agreement, this is effectively an alternative to purchasing the system, and the consumable items as above are chargeable.

Cost of consumables for Lease Option:

Product Code	Description	Price (ex VAT)

5033	**Deproxin refill solution**	**£34.50**	
HS5035	**Deprox Vapour Impermeable Tape – Low Tack**	**£9.84**	
HS5043	**Door Warning Sign**	**£39.80**	

Please note, all prices exclusive of VAT; see Part One submission

5.5 Operation of the Equipment

Would it be a requirement of the lease and / or Managed Service Agreements, to use the bidders's staff to operate the disinfection equipment, instead of the Trust's staff?

5.5 Bidder Response

The Hygiene Solutions Managed Service is a complete package provision, including the provision of engineers who have experience working in the healthcare environment, as well as the equipment and consumables.
The Lease option works very much in the same way as the Trust purchasing the equipment, with the Trust's own operatives using the Deprox system. The Lease agreement is simply a way of re-structuring the financial aspect in order to reduce the initial cost of the systems to the Trust. With a lease arrangement, the Trust would still benefit from the training package described in section 2.15.1, as well as the Support Cover, as in section 3.2.7

5.6 Implementation Time

Please quote an implementation time, using the bidders operating staff, from receipt of order, to commencement of the disinfection process in the Trusts premises.

Scoring: Shortest Implementation Time = 5, Second Shortest Implementation Time = 3, Third Shortest Implementation Time = 1, Remainder = 0

5.6 Bidder Response

In the instance of a managed service, Hygiene Solutions would be in a position to initiate the Rapid Implementation Plan (RIP) with engineers on site the next day, even if it's a weekend. The RIP would include the following:

- **Meet with key stake holders including Infection Control, Estates and Facilities, Domestic Services, Fire Officer, Nursing Directorate and Ward Staff**
- **Review and sign-off of risk assessments**
- **Analyse usage of HPV throughout the Trust, peak discharge data,**

	demand trends and infection incidence to determine the most beneficial hours of operation going forward and what resources will be needed to serve this. • **Implement Communication Channels with Infection Control, Domestic Services and Estates and Facilities to ensure a seamless service is delivered and requests are responded to in time** • **Establish communication programme with all key stakeholders to ensure the successful delivery of service to the Trust.** • **Establish service programme on online portal shared to all necessary stakeholders within the Trust.** • **Set up daily reporting online portal to keep all stakeholders informed** • **Initiate weekly meeting programme for all relevant personnel involved to maintain strong communication links**

6.0 SAFEGUARDING

The successful contractor shall adopt the Trust's Safeguarding Policies and such policies shall comply with the local multi-agency policies as amended from time to time. The successful contractor shall demonstrate:

A clear safeguarding children declaration;

Safeguarding training appropriate to staff's level of contact with children and vulnerable adults;

Before any applicant is appointed to a position involving contact with children or vulnerable adults, the successful contractor will obtain an enhanced Disclosure and Barring Service (DBS) check; including a check of the appropriate DBS 'barred lists'.

At the reasonable written request of the Trust and by no later than ten Operational Days following receipt of such request, the successful contractor shall provide evidence to the Trust that it is addressing any safeguarding concerns raised through the relevant multi-agency

reporting systems;

If requested by the Trust, the successful contractor shall participate in the development of any local multi-agency safeguarding quality indicators and/or plan. ***Please detail how this requirement shall be complied with***

6.0 Bidder Response

Hygiene Solutions have a rigorous recruitment and selection programme for all engineers working for the company, bearing in mind the particular sensitivity of the environments in which these services take place, including children and vulnerable adults. A DBS check is a fundamental part of the Company's shortlisting procedure, before a potential engineer is even given the opportunity for an interview. Copies of DBS certificates are all saved on file, and an up-to-date record is kept of all engineers. With a managed Service option, part of the Rapid Implementation Plan (RIP) is to induct these engineers on to the particular site, and give the Trust copies of such certification.
Should any concerns be raised at any stage in a Managed Service Contract, the engineer in question will not be allowed to work on any NHS site with immediate effect until such questions have been address and a satisfactory outcome has been reached. In the meantime, the Company would provide a replacement engineer to carry out works to ensure the Trust is not let down in its decontamination capacity. The Hygiene Solutions disciplinary procedure is interwoven by regulations regarding acceptable conduct on a hospital site, and any incidences would result in action being taken with regards to the individual's employment. Any questions arising from the multi-agency reporting system will be dealt with by Hygiene Solutions within 5 days.
Hygiene Solutions would welcome the opportunity to work in any multi-agency forums related to the Managed Service and other personnel that the company's work would affect, and would envisage attending relevant meetings, teleconferences, webinars etc as is fitting for the service provided. Hygiene Solutions would work with the Trust to establish quality indicators in the safeguarding of vulnerable adults and children, and would offer the use of a secure online portal to host a "score-board" for these indicators in order to engage any key stakeholders in improving the service and performance delivered.

7.0 COMMERCIAL
7.1 SCHEDULE 5: FORM OF OFFER

Schedule completed and returned with the tender submission – **YES / NO**
YES – PASS
NO – FAIL and elimination from the tender process

7.1 Bidder Response

Please find Hygiene Solutions' Form of Offer included in this ITT on page….

7.2 SCHEDULE 6: NON-COLLUSION CERTIFICATE
Schedule completed and returned with the tender submission – **YES / NO**
YES – PASS
NO – FAIL and elimination from the tender process

7.2 Bidder Response

Please find Hygiene Solutions' Non-Collusion Certificate in this ITT on page…

7.3 SID 4 GOV & DUNN & BRADSTREET D-U-N-S REFERENCE
The bidder must provide their SID 4 Gov and / or D-U-N-S reference. Please ensure that your organisation is registered on the web site **https://sid4gov.cabinetoffice.gov.uk/** Failure to provide a SID 4 Gov and / or D-U-N-S reference shall result in elimination from the tender process.

7.3 Bidder Response - SID 4 Gov and / or D-U-N-S reference provided

Hygiene Solutions is registered with Sid4Gov, number 306305, and the D-U-N-S number for the company is: 216356452

YES – PASS
NO – FAIL and elimination from the tender process

7.4 FINANCIAL RISK FAILURE SCORE Provided by **SID 4 Gov,** using the bidders SID 4 Gov and / or D-U-N-S reference – Please ensure that your organisation is registered on the web site **https://sid4gov.cabinetoffice.gov.uk/ Please refer to clause 5.3 above**

FINANCIAL RISK FAILURE SCORE is to be obtained by Sheffield Teaching Hospitals NHS Foundation Trust from the SID 4 Gov website. The Financial Risk Failure Score shall be evaluated as follows:

Score of 90 % or 5

more	
Score of 89% - 70%	3
Score of 69% - 61%	1
Score of 60% or less	Score=0 fail see below *

**** In the unlikely event of a supplier being adjudged as 'fail' the Trust reserves the option to disqualify that supplier from taking any further part in the evaluation process***

8.0 HEALTH & SAFETY ACCREDITATION

SSIP The bidder, if carrying out any works on the Trust's premises, must be a participating member of the **'SSIP' – (Safety Schemes In Procurement),** or equivalent, to undertake any works within the Trust. ***Please provide evidence of SSIP, or equivalent, membership / accreditation***. Alternatively, the bidder may offer a "Swap Out" service, where equipment is removed from site, in order to carry out maintenance and repairs, and returned once the work has been completed. In this instance the bidder shall, if successful, be required to complete the Trust's Health and Safety Induction, before any contract is awarded

8.0 Bidder Response – SSIP, or equivalent, Membership / Accreditation, or "Swap Out" service Provided - PASS
Failure to provide SSIP, or equivalent, Membership / Accreditation or "Swap Out" service – FAIL and elimination from the tender process

Hygiene Solutions provide a full swapout service for any faulty equipment or equipment needing service and do not carry out repairs or service on site.

With the Gold Service Level Agreement, the Trust would be supported by the Company's 24 hour helpline, meaning access to Hygiene Solutions Technical Support any hour of the day or night, 365 days per year, to report any faults with the Deprox equipment. This will then be swapped out within 4 hours by Hygiene Solutions Customer Services engineers. The equipment is then returned to the Engineering Laboratory, where it will be fully serviced, calibrated and tested before return to the Trust.

SCHEDULE 5: FORM OF OFFER

INVITATION TO TENDER FOR:
Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems

STH REFERENCE: 42125/EU/SAS

.....**Hygiene Solutions**..... (the Bidder)

of .....**Maple House, Hamlin Way, King's Lynn, PE30 4NG**.....

.....

.....

AGREES

That this offer and any Contract arising from it shall be subject to the Terms of Offer, Terms and Conditions of Contract, and Supplementary Conditions of Contract issued with the Invitation of Offer; and

To supply goods/services of the exact quality, sort and price specified in the Offer Schedule in such quantities to such extent and at such times and locations as ordered

Dated this .....**21**..... day of .....**September**..... 20 **14**.....

Name (print) .....**Daniel Fentiman**.....

Signature .....

Title .....**DIRECTOR**.....

IF YOUR OFFER IS TAKEN FORWARD A HARD COPY MAY BE REQUIRED

SCHEDULE 6: NON-COLLUSION CERTIFICATE

INVITATION TO TENDER FOR:
Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems

STH REFERENCE: 42125/EU/SAS

I, the undersigned, in submitting the accompanying Tender to

(name of Client)…**Sheffield Teaching Hospitals NHS Foundation Trust**……

……

in relation to (details of Tender and reference)…**Hydrogen Peroxide Vapour (HPV) Bio Decontamination Systems "No Touch" Automated Room/ Ward Disinfection Systems; OJEU NUMBER: 2013/S 226-393116; STH Ref: 42125/EU/SAS**…….....

certify on behalf of (name of Tenderer)…**Hygiene Solutions**……

that, **with the exception of any information attached hereto** (see * below):

1) this Tender is made in good faith, and is intended to be genuinely competitive;

2) the amount of this Tender has been arrived at independently, and has not been fixed, adjusted or influenced by any agreement or arrangement with any other undertaking, and has not been communicated to any competitor;

3) we have not entered into any agreement or arrangement with any competitor or potential competitor in relation to this Tender;

4) I have read and I understand the contents of this Certificate, and I understand that knowingly making a false declaration on this form may result in legal action being taken against me.

In this certificate, the word 'competitor' includes any undertaking who has been requested to submit a Tender or who is qualified to submit a Tender in response to this request for Tenders, and the words 'any agreement or arrangement' include any such transaction, whether or not legally binding, formal or informal, written or oral.

*** Information is/is not attached hereto** (delete as appropriate)

Organisation's name	**Hygiene Solutions**
Signatory's name	**Daniel Fentiman**
Signed	
Position	**Director**
Date	**22 September 2014**

SCHEDULE 7: DEED OF GUARANTEE

INVITATION TO TENDER FOR:
Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems

STH REFERENCE: 42125/EU/SAS

This Guarantee is made the .....**22**..... day of .....**September 2014**.....

BETWEEN .....**Hygiene Solutions**..... ....PLC/Limited, whose registered office is

Situated at ....**Maple House, Hamlin Way, King's Lynn, PE30 4NG**.....

(hereinafter called "The Guarantor") of the first part and the Sheffield Teaching Hospitals NHS Foundation Trust (hereinafter called "The Authority") of the second part.

WHEREAS

9.1 .....**Hygiene Solutions**..... PLC/Limited, whose registered office is at

...**Maple House, Hamlin Way, King's Lynn, PE30 4NG**.....

(hereinafter called "The Contractor") has submitted an Offer dated

..**22 September 2014**..... for the provision of ..**Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems**.....

which Offer has been accepted;

9.2 By the Terms of Offer the said Offer together with The Authority acceptance thereof constitute a binding Agreement between The Authority and the Contractor that the Contractor shall hereafter execute a formal written Agreement upon the terms and conditions stipulated in the Invitation to Offer.

Now therefore the guarantor agrees with The Authority as follows:

9.3 If the Contractor (unless relieved from the performance by any terms of the said Agreements (or any other of them) or by stature or by the decision of a tribunal of competent jurisdiction) shall in any respect fail to execute the said Agreements [or any of them] or shall commit any breach of any of the Contractor's obligations thereunder, the Guarantor will upon demand indemnify The Authority against all losses, damages, costs and expenses which may be incurred by The Authority by reason of any default on the part of the Contractor in performing and observing the provisions of the said Agreements (or of any of them).

9.4 The Guarantor shall not be discharged or released from this Guarantee by any arrangement made between the Contractor and The Authority without the assent of the Guarantor, or by any alteration in the obligations undertaken by the Contractor or by any forbearance whether as to payment, time, performance or otherwise.

In Witness whereof the Guarantor has executed this Deed the day and year above.

Executed as a Deed by ..... Director

The Guarantor.

Statement for General Site Policies and Procedures

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

Statement for Estates Procedure for Management of Contractors

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

Statement for Estates Procedure for Contractors Induction

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

Statement for Terms and Conditions

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

Statement for Safeguarding Children Policy

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

Statement for Safeguarding Vulnerable Adults Policy

Hygiene Solutions agree to comply with the details stipulated by Sheffield Teaching Hospitals NHS Foundation Trust in the above document.

SCHEDULE 9: FREEDOM OF INFORMATION EXCLUSIONS

INVITATION TO TENDER FOR:
Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems

STH REFERENCE: 42125/EU/SAS

On completion of the ITT, please read the declaration below. This Appendix should then be completed, signed and returned with the ITT response.

1. Bidders should complete this exclusions Appendix with information that they believe can be excluded under the Freedom of Information Act 2000.

2. Bidders should be aware that requests for information under the Freedom of Information Act 2000 are considered individually and that the decision as to whether the requested information will be disclosed lies solely with the Authority

Section of the ITT	Description	FOIA Exemption	Exemption Period to be Applied

Organisation's name	**Hygiene Solutions**
Signatory's name	**Daniel Fentiman**
Signed	
Position	**Director**
Date	**22 September 2014**

SCHEDULE 10: CERTIFICATE IN RESPECT OF UNAUTHORISED APPROACHES TO THE AUTHORITY'S EMPLOYEES

INVITATION TO TENDER FOR:
Hydrogen Peroxide Vapour (HPV) Bio Decontamination System "No Touch" Automated Room / Ward Disinfection Systems

STH REFERENCE: 42125/EU/SAS

On completion of the ITT, please read the declaration below. This Schedule should then be completed, signed and returned with the ITT response.

I/We hereby certify that I/We have not made any unauthorised approach in writing or otherwise to any employee of the Authority to ascertain any information relating to individual or collective rates of pay, conditions of service or to obtain any operational information to assist in submitting this tender or any other tender or proposed tender and that no person employed by me/us acting on my/our behalf has done any such act.

I/We hereby undertake that I/We will not in the future do any such unauthorised act as specified above in connection with the tender or any proposed tender and that no person employed by me/us acting on my/our behalf will do any such act.

Organisation's name	**Hygiene Solutions**	
Signatory's name	**Daniel Fentiman**	
Signed		
Position	**Director**	
Date	**22 September 2014**	

Response to Section 3.2 (Scope of the Service)

Hygiene Solutions are passionate about creating technologies that become intuitive in the regular practice within the Hospital environment. Focusing on healthcare, Hygiene Solutions are conscious of the developing challenges within the NHS, and the impact that our practice could have on these.
Hygiene Solutions believe the usability and implementation of any technology is as important as developing the technology itself. Hygiene Solutions would like to partner with a leading NHS Trust, such as Sheffield Teaching NHS Foundation Trust to further develop our family of decontamination technologies. Below is an example of some areas where we believe there is opportunity for a strong partnership for mutual benefit.

Current Deprox developments
Our response to this Tender is based on the current revision of Deprox HPV 'no-touch' decontamination systems.
Since the outset and initial launch of the Deprox system, Hygiene Solutions have worked to understand the needs and challenges of our clients by partnering in Client Innovation Review Meetings. These have proved mutually beneficial, giving Hygiene Solutions a clear road map for innovation and product development that deliver real benefits to our patients and organisational performance. On the basis of Hygiene Solutions being successful in this tender process, we would like to share with Sheffield Teaching NHS Foundation Trust some of the following innovations:

1. **Reduced process time – Hygiene Solutions are currently working on the final development stages of an improved Deprox system capable of achieving a log 6 reduction of nosocomial pathogens with a total process time including deactivation of less than 50 minutes. This will benefit the Trust through less impact on bed pressure and patient dynamics, without sacrificing the high level of decontamination that is required for multi drug resistant organisms.**
2. **Improved traceability – as technology advances, Hygiene Solutions are developing the ultimate user interface which will be capable of linking directly to the operators smart phone. This will give the user direct access, via a downloadable app, to the system and updates of decontamination process. The key influencing factor of this innovation is to ensure the Deprox system is truly integrated into the routine cleaning practice and to maximise the effectiveness of our operators.**
3. **'Tagit' – Tagit is due to start the initial trial stages very soon. This technology is for traceability of room decontamination as well as patient and medical equipment. This involves the tagging of each room and patient/medical equipment. Before each decontamination process, the Deprox will be capable of recording the each piece of equipment via the electronic tags. Once the decontamination process is complete, this information is loaded to a central portal, giving the Trust the benefit of 'real-time' data of the areas and equipment that has been decontaminated. Further developments with this technology included patient and medical equipment tracking.**