RESPIRATORY DRUG DELIVERY		
Document Number **RDD-Q-089-FR**	**Revision** **03**	**Document Name** **CLINICAL DATA REVIEW**

CLINICAL REVIEW			
NAME	**Cheryl Nickerson**	**DATE**	Nov 22, 2016
SIGNATURE	Cheryl Nickerson	**JOB TITLE**	**Product Manager**
APPROVAL			
NAME	**Alessandro Agosti**	**DATE**	22 NOV 16
SIGNATURE		**JOB TITLE**	**Sr Manager - QARA**

1. PRODUCT DATA
1.1 Product Name: InnoSpire Mini, InnoSpire Essence, InnoSpire Elegance
1.2 Models (EU only): InnoSpire Mini (EU Plug) 1109291, InnoSpire Mini with battery (EU plug region A) 1109292, InnoSpire Mini with battery (EU plug region B) 1109438, InnoSpire Mini with battery (UK plug) 1111453 InnoSpire Essence (EU Plug) 1099967, InnoSpire Essence (UK Plug) 1112261, InnoSpire Elegance (EU Plug) 1099973
1.3 Volume in Distribution or Use: InnoSpire Mini – **111,847** InnoSpire Essence & Elegance – **2,103,574** **Volume of models listed above:** InnoSpire Mini - **1,986** InnoSpire Essence & Elegance – **361,558** **Volume of all other models:** InnoSpire Mini - **109,861** InnoSpire Essence & Elegance – **1,742,016** **All data correct as of end of September 2016**
1.4 Manufacturer: Respironics Respiratory Drug Delivery (UK) Ltd

1. PRODUCT DATA

1.5 Description of the product

The InnoSpire Mini is a portable DC and battery compressor nebulizer system intended to provide a source of compressed air for medical purposes. It is to be used with a pneumatic (jet) nebulizer to produce aerosol particles of medication for respiratory therapy for both children and adults.

The InnoSpire Essence and Elegance are portable compressor systems intended to provide a source of compressed air for medical purposes. They are to be used with a pneumatic (jet) nebulizer to produce aerosol particles of medication for respiratory therapy for both children and adults.

The compressor system includes a Respironics Sidestream nebuliser. Sidestream can be used to nebulise all commonly prescribed bronchodilator medications for respiratory conditions. The Sidestream has a Venturi system which enhances drug output and delivers fast treatment times (2.5ml in 6 minutes). The Sidestream is also highly efficient (80% of drug output volume less than 5 microns) and has a low residual volume (0.5ml).

1.6 Description of the intended use of the product (Including therapeutic claims):

An assembly of devices designed to generate non-heated aerosolized medication/fluids (finely dispersed airborne droplets in a liquid phase) intended to be inhaled by a patient with a respiratory disorder [e.g., chronic obstructive pulmonary disease (COPD), cystic fibrosis (CF)]. It will typically consist of an electrically-powered generator, a reservoir, and a hand-held nebulizing chamber where the nebulization of the medicine usually takes place.

1.7 Outline of development context:

No clinical evaluations were used in the development of the InnoSpire Mini, InnoSpire Essence and InnoSpire Elegance since products with similar intended use(s) already existed in the market (i.e. Philips Respironics MiniElite, Inspiration Elite, Optionhome, and the long-running PortaNeb).

1.8 Clinical Data.
Data collection approach:

Published literature ☑
Clinical Investigation ☐
Combination of both ☐

1.9 State the Essential Requirements relevant to the device in question, in particular, any special design features that pose special performance or safety concerns

See Essential Requirements Checklist for applicable Essential Requirements (Section 9 of this Technical File)

1. PRODUCT DATA

1.10 Essential Requirements (List the Annexes of the MDD that require support from clinical data)

4. The characteristics and performances referred to in Sections 1, 2 and 3 must not be adversely affected to such a degree that the clinical conditions and safety of the patients and, where applicable, of other persons are compromised during the lifetime of the device as indicated by the manufacturer, when the device is subjected to the stresses which can occur during normal conditions of use.
6a. Demonstration of conformity with the essential requirements must include a clinical evaluation in accordance with Annex X.
7.3. The devices must be designed and manufactured in such a way that they can be used safely with the materials, substances and gases with which they enter into contact during their normal use or during routine procedures; if the devices are intended to administer medicinal products they must be designed and manufactured in such a way as to be compatible with the medicinal products concerned according to the provisions and restrictions governing these products and that their performance is maintained in accordance with the intended use.

1.11 List of applied harmonized standards relating to safety

See list of harmonized standards (Section 21 of this Technical File)

2. HISTORICAL DATA ANALYSIS

2.1 Review of Complaints and Incidents:

2.1.1 Complaints in the RRDD notifications system database 2005 to 2016 - Numbers of Complaints, Incidents, and Problems Reported to the RRDD notification database:

InnoSpire Mini 962, Essence 4422 and Elegance 3698

Number of Injuries: InnoSpire Mini – 0 InnoSpire Essence - 0 InnoSpire Elegance - 2 Mini Elite – 0	**Number of Deaths:** InnoSpire Mini - 0 InnoSpire Essence – 0 InnoSpire Elegance – 0 Mini Elite - 0

2.2 Review of Problems Report:

2.2.1 FDA Medical Device Reports analyzed for this review

Adverse Event Reporting Data Files MAUDE Data (Manufacturer and User Facility Device Experience database) and Medical Device Recall Database Data.

2949 reports found using a generic search for Product Code: 'Compressor' from 2006 through 8th July 2016 (for years 2012-2016 the maximum number of reports (500) was returned).

11 reports found searching for the brand name: Essence From June 2012 through June 22nd 2016

9 report found searching for the brand name: Elegance from June 2012 through June 22nd 2016

1 report found searching for the brand name: InnoSpire Mini from June 2012 through June 22nd 2016

No safety related recalls for InnoSpire Mini, Essence or Elegance.

2. HISTORICAL DATA ANALYSIS

2.2.2 Canadian Mandatory Problem Reports: None found using the search terms: Compressor, Essence, Elegance or InnoSpire Mini.

For 'Nebulizer' and related terms see TF 07 Sidestream.

2.2.3 Australian Incident Reporting and Investigation System (IRIS):

22 reports found on DAEN from 07/01/2012 to 06/07/2016 for Compressor.
0 reports found on DAEN from 07/01/2012 to 06/07/2016 for Essence, Elegance or Innospire Mini.

One report submitted to IRIS for Elegance 07/01/2012 to 06/07/2016 - None for Essence or InnoSpire Mini.

For 'Nebulizer' and related terms see TF 07 Sidestream.

2.2.4 EU Vigilance Reports:

No Medical Device Alerts or Field Safety Notices found for Essence, Elegance or InnoSpire Mini.

2 MDV reports submitted for Elegance 07/01/2012 to 06/07/2016 - None for Essence or InnoSpire Mini.

2.2.5 Other (please identify): N/A

2.3 Review of Publications:

Where published scientific literature has been used, provide a brief outline of the searching/retrieval process, cross-referenced to the literature search protocol and reports (See Appendix A)

2.3.1 Publications from our clinical data library that have reference to these products that have been considered for this report:

2.3.2 Publication from our RRDD Science pages that have reference to these products that are considered in this review:

2.4 Review of Other Data

2.4.1 Device or Other Product Related Factors (design, production, quality control, labeling), possibly contributing to the Clinical risk: None

2.4.2 Use Related User or Human Performance Contributing Factors: None

2.4.3 Population at Greater Risk: (e.g., children, elderly, pregnant women, immunocompromised, etc.): None

2.4.4 Specify all immediate and/or long term health consequences of the hazard (specify):
None

3. HEALTH/RISK INDEX

3.1 Assessment of risks identified in Technical Publications:

Potential problems discussed in literature

Remote	**0**	**Comments:** None present
Rare	1	
Occasional	2	
Frequent	3	
Continuously Occurring	4	

3.2 Probability of Adverse Health Outcome Occurring to the Patient Population at Risk or Exposed:

Extremely Unlikely	**0**	**Comments:** None present
Unlikely but Possible	1	
Likely	2	
Very Likely	3	
Extremely Likely	4	

3.3 Severity of an Adverse Health Outcome (that might reasonably be expected to occur):

None (No adverse health consequences)	**0**	**Comments:** None expected to occur.
Limited (Transient, self-limiting illness or injury)	1	
Moderate (Significant impairment, but temporary/reversible)	2	
Severe (Serious injury, permanent impairment, irreversible)	3	
Life Threat (Life threatening, death could occur)	4	

3.4 Clinical Risk Index (obtained by adding the score of the above three variables):

None/Negligible	**0-3**	**Hazard/Risk Index: 0 = None/Negligible**
Low	4-6	
Moderate	7-9	
High	10-12	

3.5 Comments:

N/A

3.6 Summary:

The product literature and Instructions for Use are consistent with the clinical data. There are no hazards or other clinically relevant information identified that may impact on the use of the device. Any risks identified in the risk management documentation have been addressed by the clinical data.

4. POST MARKET CLINICAL FOLLOW UP STUDY
4.1 Details
N/A

5. REVISION HISTORY (of information)

Change Note	Revision	Date	Author	Description of Change
N/A	00	09 Feb 2015	C. Nickerson	Initial
N/A	01	08 Nov 2016	C.Nickerson	Data Reviewed
N/A	02	22 Nov 2016	C. Nickerson	Section 2.2.1 updated

Appendix A - Literature Search

<table>
<tr><td colspan="2">Scope of Literature Search</td><td colspan="6">Identifying literature to demonstrate the safety of using a compressor nebulizer system.

Full free text articles were reviewed</td></tr>
<tr><td>Date of search</td><td>30th Sep 2016</td><td colspan="2">Person undertaking search</td><td colspan="2">Steve Colbey</td><td>Period covered by search</td><td>Newest to oldest</td></tr>
<tr><td rowspan="2">Literature Source</td><td rowspan="2">Pubmed</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">Justification of source</td><td rowspan="2">US National Library of Medicine National Institutes of Health - reviewed articles</td><td>Key terms used:</td><td>Compressor
Compressors
Air Compressor
Air Compressors
Medical Compressor
Medical Compressors
Innospire</td></tr>
<tr><td>Justification of key terms</td><td>There are no other terms commonly used to refer to generic medical compressors. For 'Nebulizer' and related terms see TF 07 Sidestream.</td></tr>
</table>

Article details	Relevant	Justification (brief conclusion)
1: Tozaki T, Sato F, Ishimaru M, Kikuchi M, Kakoi H, Hirota KI, Nagata SI. Sequence variants of BIEC2-808543 near LCORL are associated with body composition in Thoroughbreds under training. J Equine Sci. 2016;27(3):107-114. PubMed PMID: 27703405.	No	Relates to Thoroughbreds.
2: Food and Drug AdministFhsieh ration, HHS. Cardiovascular Devices; Reclassification of External Cardiac Compressor; Reclassification of Cardiopulmonary Resuscitation Aids. Final order. Fed Regist. 2016 May 25;81(101):33128-34. PubMed PMID: 27224965.	No	Relates to external cardiac compressors.
3: Noronen T, Firstov S, Dianov E, Okhotnikov OG. 1700 nm dispersion managed mode-locked bismuth fiber laser. Sci Rep. 2016 Apr 21;6:24876. doi: 10.1038/srep24876. PubMed PMID: 27097798; PubMed Central PMCID: PMC4838940.	No	Relates to compression of laser pulses.
4: Pastuhoff M, Tillmark N, Alfredsson PH. Measuring Surface Pressure on Rotating Compressor Blades Using Pressure Sensitive Paint. Sensors (Basel). 2016 Mar 8;16(3). pii: E344. doi: 10.3390/s16030344. PubMed PMID: 27005623; PubMed Central PMCID: PMC4813919.	Yes	Describes a technique for measuring pressure on the blades of a rotary compressor using pressure sensitive paint.

5: Choi J, Kim S, Shin DA. Biomechanical Comparison of Spinal Fusion Methods Using Interspinous Process Compressor and Pedicle Screw Fixation System Based on Finite Element Method. J Korean Neurosurg Soc. 2016 Mar;59(2):91-7. doi: 10.3340/jkns.2016.59.2.91. Epub 2016 Feb 29. PubMed PMID: 26962413; PubMed Central PMCID: PMC4783490.	No	Investigates the biomechanical effects of an Interspinous Process Compressor (IPC) and compares with pedicle screw fixation at surgical and adjacent levels of lumbar spine.
6: Wang F, Mao P, He H. Dispensing of high concentration Ag nano-particles ink for ultra-low resistivity paper-based writing electronics. Sci Rep. 2016 Feb 17;6:21398. doi: 10.1038/srep21398. PubMed PMID: 26883558; PubMed Central PMCID: PMC4756288.	No	Relates to paper based writing technology.
7: Chen S, Li W, Zhang Z, Min H, Li H, Wang H, Zhuang Y, Chen Y, Gao C, Peng H. Evaluating the Quality of Cardiopulmonary Resuscitation in the Emergency Department by Real-Time Video Recording System. PLoS One. 2015 Oct 2;10(10):e0139825. doi: 10.1371/journal.pone.0139825. eCollection 2015. PubMed PMID: 26431420; PubMed Central PMCID: PMC4592189.	No	Evaluates real-time video recording within an emergency department.
8: Karaarslan AA, Karakaşlı A, Karcı T, Aycan H, Sesli E. Reliability of threaded locking screws. Acta Orthop Traumatol Turc. 2015;49(5):552-7. doi: 10.3944/AOTT.2015.14.0439. PubMed PMID: 26422352.	No	Evaluates the reliability of interlocking femoral nails.
9: Mahdipoor MS, Kirols HS, Kevorkov D, Jedrzejowski P, Medraj M. Influence of impact speed on water droplet erosion of TiAl compared with Ti6Al4V. Sci Rep. 2015 Sep 22;5:14182. doi: 10.1038/srep14182. PubMed PMID: 26391370; PubMed Central PMCID: PMC4585747.	No	Relates to water droplet erosion in the power generation industry.
10: Zimmerle DJ, Williams LL, Vaughn TL, Quinn C, Subramanian R, Duggan GP, Willson B, Opsomer JD, Marchese AJ, Martinez DM, Robinson AL. Methane Emissions from the Natural Gas Transmission and Storage System in the United States. Environ Sci Technol. 2015 Aug 4;49(15):9374-83. doi: 10.1021/acs.est.5b01669. Epub 2015 Jul 21. PubMed PMID: 26195284.	No	Relates to methane emissions from the natural gas industry.
11: Nicolae M, Pathak S, Rajasekaran S. LFQC: a lossless compression algorithm for FASTQ files. Bioinformatics. 2015 Oct 15;31(20):3276-81. doi: 10.1093/bioinformatics/btv384. Epub 2015 Jun 20. PubMed PMID: 26093148; PubMed Central PMCID: PMC4795634.	No	Relates to compression of data.
12: Senthilkumar R, Nandagopal G, Ronald D. QRFXFreeze: Queryable Compressor for RFX. ScientificWorldJournal. 2015;2015:864750. doi: 10.1155/2015/864750. Epub 2015 May 6. PubMed PMID: 26065027; PubMed Central PMCID: PMC4438271.	No	Relates to compression of data.
13: Malysa G, Hernaez M, Ochoa I, Rao M, Ganesan K, Weissman T. QVZ: lossy compression of quality values. Bioinformatics. 2015 Oct 1;31(19):3122-9. doi: 10.1093/bioinformatics/btv330. Epub 2015 May 28. PubMed PMID: 26026138.	No	Relates to compression of data.

14: Levy SC, Freed DJ, Nilsson M, Moore BC, Puria S. Extended High-Frequency Bandwidth Improves Speech Reception in the Presence of Spatially Separated Masking Speech. Ear Hear. 2015 Sep-Oct;36(5):e214-24. doi: 10.1097/AUD.0000000000000161. PubMed PMID: 25856543; PubMed Central PMCID: PMC4549240.	No	Relates to compression of audio signals.
15: Shimasaki N, Okaue A, Kikuno R, Okuda S, Abe K. Development of a new technique using glass beads for dry dispersion of airborne fungal spores. Biocontrol Sci. 2015;20(1):53-8. doi: 10.4265/bio.20.53. PubMed PMID: 25817813.	No	Relates to the removal of airborne microbes that happen to be blown by a compressor.
16: Seren M, Cicek OF, Cicek MC, Yener AU, Ulaş M, Tola M, Uzun A. U-vein compressor improves early haemodynamic outcomes in radiocephalic arterio-venous fistulae in under 2-mm superficial veins. Cardiovasc J Afr. 2015 Jan-Feb;26(1):41-4. doi: 10.5830/CVJA-2015-008. PubMed PMID: 25784317; PubMed Central PMCID: PMC4814806.	No	Relates to arterio-venous fistulae (AVF) created by U-vein compressors.
17: Torres-Ronda L, Del Alcázar XS. The Properties of Water and their Applications for Training. J Hum Kinet. 2014 Dec 30;44:237-48. doi: 10.2478/hukin-2014-0129. eCollection 2014 Dec 9. PubMed PMID: 25713684; PubMed Central PMCID: PMC4327375.	No	Relates to the biological effects of immersion in water.
18: Subramanian R, Williams LL, Vaughn TL, Zimmerle D, Roscioli JR, Herndon SC, Yacovitch TI, Floerchinger C, Tkacik DS, Mitchell AL, Sullivan MR, Dallmann TR, Robinson AL. Methane emissions from natural gas compressor stations in the transmission and storage sector: measurements and comparisons with the EPA greenhouse gas reporting program protocol. Environ Sci Technol. 2015 Mar 3;49(5):3252-61. doi: 10.1021/es5060258. Epub 2015 Feb 10. PubMed PMID: 25668051.	No	Relates to methane emissions from the natural gas industry.
19: Ma J, Yuan P, Wang J, Wang Y, Xie G, Zhu H, Qian L. Spatiotemporal noise characterization for chirped-pulse amplification systems. Nat Commun. 2015 Feb 4;6:6192. doi: 10.1038/ncomms7192. PubMed PMID: 25648187; PubMed Central PMCID: PMC4327312.	No	Relates to spatiotemporal coupling.
20: Eckels SJ, Jones B, Mann G, Mohan KR, Weisel CP. Aircraft Recirculation Filter for Air-Quality and Incident Assessment. J Aircr. 2014;51(1):320-326. PubMed PMID: 25641977; PubMed Central PMCID: PMC4308957.	No	Relates to the use of recirculation filters from aircraft to document the nature of air-quality incidents on aircraft.
21: Kandemir T, Muslu S, Kandemir E. Sudden Appearance of Water in Flowmeter During Air/Oxygen and Sevoflurane Anaesthesia. Turk J Anaesthesiol Reanim. 2015 Feb;43(1):65-7. doi: 10.5152/TJAR.2014.57070. Epub 2014 Sep 9. PubMed PMID: 27366469; PubMed Central PMCID: PMC4917130.	No	Relates to the presence of water in a flowmeter attached to an anesthesia device.
22: Zhou J, Ji Z, Zhu Z, He S. Compression of next-generation sequencing quality scores using memetic algorithm. BMC Bioinformatics. 2014;15 Suppl 15:S10. doi: 10.1186/1471-2105-15-S15-S10. Epub 2014 Dec 3. PubMed PMID: 25474747; PubMed Central PMCID: PMC4271560.	No	Relates to the compression of data.

23: Yamashita H, Haga A, Takahashi W, Takenaka R, Imae T, Takenaka S, Nakagawa K. Volumetric modulated arc therapy for lung stereotactic radiation therapy can achieve high local control rates. Radiat Oncol. 2014 Nov 11;9:243. doi: 10.1186/s13014-014-0243-1. PubMed PMID: 25385062; PubMed Central PMCID: PMC4229616.	No	Relates to tumour size in patients treated with an abdominal compressor.
24: Khan TH, Wahid KA. Design of a lossless image compression system for video capsule endoscopy and its performance in in-vivo trials. Sensors (Basel). 2014 Nov 4;14(11):20779-99. doi: 10.3390/s141120779. PubMed PMID: 25375753; PubMed Central PMCID: PMC4279511.	No	Relates to the compression of data
25: Ochoa I, Hernaez M, Weissman T. iDoComp: a compression scheme for assembled genomes. Bioinformatics. 2015 Mar 1;31(5):626-33. doi: 10.1093/bioinformatics/btu698. Epub 2014 Oct 24. PubMed PMID: 25344501.	No	Relates to the compression of genomes.
26: Kim DS, Kwon JS. A lossless multichannel bio-signal compression based on low-complexity joint coding scheme for portable medical devices. Sensors (Basel). 2014 Sep 18;14(9):17516-29. doi: 10.3390/s140917516. PubMed PMID: 25237900; PubMed Central PMCID: PMC4208236.	No	Relates to the compression of data
27: Samarghandi MR, Babaee SA, Ahmadian M, Asgari G, Ghorbani Shahna F, Poormohammadi A. Performance catalytic ozonation over the carbosieve in the removal of toluene from waste air stream. J Res Health Sci. 2014 Summer;14(3):227-32. PubMed PMID: 25209912.	No	Relates to the use of catalytic ozonation for toluene removal from waste air.
28: Yang H, Xu H. The new performance calculation method of fouled axial flow compressor. ScientificWorldJournal. 2014;2014:906151. doi: 10.1155/2014/906151. Epub 2014 Aug 13. PubMed PMID: 25197717; PubMed Central PMCID: PMC4147357.	Yes	Models the degradation caused by fouling on axial flow compressors.
29: Lee C, Park WJ, Kim M, Noh S, Yoon C, Lee C, Kim Y, Kim HH, Kim HC, Kim S. Pneumatic-type surgical robot end-effector for laparoscopic surgical-operation-by-wire. Biomed Eng Online. 2014 Sep 5;13:130. doi: 10.1186/1475-925X-13-130. PubMed PMID: 25189221; PubMed Central PMCID: PMC4167265.	No	Relates to use of robotic surgery techniques.
30: Li J, Xing F, You Z. An efficient image compressor for charge coupled devices camera. ScientificWorldJournal. 2014;2014:840762. doi: 10.1155/2014/840762. Epub 2014 Jul 7. PubMed PMID: 25114977; PubMed Central PMCID: PMC4119662.	No	Relates to wavelet transforms- based compressors.
31: González-Aguirre D, Jaramillo-Gante MÁ, Muruato-Araiza S, Sánchez-Aguilar JM, Montes de Oca-Arce JL. [Renal transplantation in Maastricht II asystole: report of a first case in Mexico]. Gac Med Mex. 2014 Jul-Aug;150(4):345-7. Spanish. PubMed PMID: 25098220.	No	Relates to resuscitation compressions.
32: Gourdain N, Sicot F, Duchaine F, Gicquel L. Large eddy simulation of flows in industrial compressors: a path from 2015 to 2035. Philos Trans A Math Phys Eng Sci. 2014 Aug 13;372(2022):20130323. doi: 10.1098/rsta.2013.0323. PubMed PMID: 25024422; PubMed Central PMCID: PMC4095899.	No	Relates to turbulent unsteady flows in industrial multistage compressors.

33: Hallberg CJ, Lysaught MT, Najarro RA, Cea Gil F, Villatoro C, Diaz de Uriarte AC, Olson LE. Treatment of asthma exacerbations with the human-powered nebuliser: a randomised parallel-group clinical trial. NPJ Prim Care Respir Med. 2014 Jun 26;24:14016. doi: 10.1038/npjpcrm.2014.16. PubMed PMID: 24965834; PubMed Central PMCID: PMC4373316.	Yes	Compares a low-cost, human-powered nebuliser compressor with an electric nebuliser compressor for the treatment of mild to moderate asthma exacerbations in adults and children. Concludes they are equivalent.
34: Cheng CC, Lee D. Smart sensors enable smart air conditioning control. Sensors (Basel). 2014 Jun 24;14(6):11179-203. doi: 10.3390/s140611179. PubMed PMID: 24961213; PubMed Central PMCID: PMC4118346.	No	Relates to compressor output of a smart air conditioner.
35: Liu E, Li C, Yang Y. Optimal energy consumption analysis of natural gas pipeline. ScientificWorldJournal. 2014;2014:506138. doi: 10.1155/2014/506138. Epub 2014 May 13. PubMed PMID: 24955410; PubMed Central PMCID: PMC4053082.	No	Relates to the transportation of natural gas
36: Hallberg CJ, Lysaught MT, Zmudka CE, Kopesky WK, Olson LE. Characterization of a human powered nebulizer compressor for resource poor settings. Biomed Eng Online. 2014 Jun 16;13:77. doi: 10.1186/1475-925X-13-77. PubMed PMID: 24939567; PubMed Central PMCID: PMC4074310.	Yes	Compares a low-cost, human-powered nebuliser compressor with an electric nebuliser compressor for the treatment of mild to moderate asthma exacerbations in adults and children. Concludes they are equivalent
37: Ishimoto H, Yatera K, Oda K, Kawanami T, Soda H, Kohno S, Mukae H. [Two cases of acute respiratory distress syndrome related to zinc fumes and zinc dust inhalation]. J UOEH. 2014 Jun 1;36(2):147-52. Japanese. PubMed PMID: 24930880.	No	Relates to the risk of zinc fume inhalation
38: Nishida Y, Kobayashi H, Nishida H, Sugimura K. Performance Improvement of a Return Channel in a Multistage Centrifugal Compressor Using Multiobjective Optimization. J Turbomach. 2013 May;135(3):0310261-310268. Epub 2013 Mar 25. PubMed PMID: 24891759; PubMed Central PMCID: PMC3994759.	No	Relates to performance enhancement on a multi-stage centrifugal compressor
39: Hinata N, Murakami G. The urethral rhabdosphincter, levator ani muscle, and perineal membrane: a review. Biomed Res Int. 2014;2014:906921. doi: 10.1155/2014/906921. Epub 2014 Apr 27. Review. PubMed PMID: 24877147; PubMed Central PMCID: PMC4022307.	No	Relates to compressor urethrae
40: Roguski L, Deorowicz S. DSRC 2--Industry-oriented compression of FASTQ files. Bioinformatics. 2014 Aug 1;30(15):2213-5. doi: 10.1093/bioinformatics/btu208. Epub 2014 Apr 18. PubMed PMID: 24747219.	No	Relates to the compression of data
41: Glick J, Lehman E, Terndrup T. The effect of compressor-administered defibrillation on peri-shock pauses in a simulated cardiac arrest scenario. West J Emerg Med. 2014 Mar;15(2):246-50. doi: 10.5811/westjem.2013.9.18007. PubMed PMID: 24672620; PubMed Central PMCID: PMC3966454.	No	Relates to the performance of chest compressions

42: Yan Y, Jiang L, Aufderheide KJ, Wright GA, Terekhov A, Costa L, Qin K, McCleery WT, Fellenstein JJ, Ustione A, Robertson JB, Johnson CH, Piston DW, Hutson MS, Wikswo JP, Hofmeister W, Janetopoulos C. A microfluidic-enabled mechanical microcompressor for the immobilization of live single- and multi-cellular specimens. Microsc Microanal. 2014 Feb;20(1):141-51. doi: 10.1017/S1431927613014037. Epub 2014 Jan 21. PubMed PMID: 24444078; PubMed Central PMCID: PMC4026272.	No	Relates to microcompressors for flattening and immoblising living cells.
43: Witoś M. High sensitive methods for health monitoring of compressor blades and fatigue detection. ScientificWorldJournal. 2013 Sep 29;2013:218460. doi: 10.1155/2013/218460. eCollection 2013. PubMed PMID: 24191135; PubMed Central PMCID: PMC3804448.	No	Relates to metal blade fatigue (RDD compressors do not have metal blades)
44: Awad S, Williams DK, Berlinski A. Longitudinal evaluation of compressor/nebulizer performance. Respir Care. 2014 Jul;59(7):1053-61. doi: 10.4187/respcare.02776. Epub 2013 Oct 22. PubMed PMID: 24149670.	Yes	Compares longitudinal performance of compressor/nebulizer systems. Concludes that Maximal flow without and with the nebulizer, could help identify compressors that are likely to fail.
45: Li H, Zhang X, Xu F. Experimental investigation on centrifugal compressor blade crack classification using the squared envelope spectrum. Sensors (Basel). 2013 Sep 18;13(9):12548-63. doi: 10.3390/s130912548. PubMed PMID: 24051521; PubMed Central PMCID: PMC3821361.	No	Relates to blade crack evaluation on centrifugal compressor blade crack
46: Al-Fakih EA, Osman NA, Eshraghi A, Adikan FR. The capability of fiber Bragg grating sensors to measure amputees' trans-tibial stump/socket interface pressures. Sensors (Basel). 2013 Aug 12;13(8):10348-57. doi: 10.3390/s130810348. PubMed PMID: 23941909; PubMed Central PMCID: PMC3812607.	No	Relates to the use of a compressor to inflate a balloon, to mimic pressure on an amputee stump
47: Sammak M, Thorbergsson E, Grönstedt T, Genrup M. Conceptual Mean-Line Design of Single and Twin-Shaft Oxy-Fuel Gas Turbine in a Semiclosed Oxy-Fuel Combustion Combined Cycle. J Eng Gas Turbine Power. 2013 Aug;135(8):0815021-815028. Epub 2013 Jun 24. PubMed PMID: 25805914; PubMed Central PMCID: PMC3994750.	No	Relates to turbomachinery preliminary mean-line design of oxy-fuel compressor and turbine.
48: Rieke H, Rieke M, Gado SK, Nietert PJ, Field LC, Clark CA, Furse CM, McEvoy MD. Virtual arterial blood pressure feedback improves chest compression quality during simulated resuscitation. Resuscitation. 2013 Nov;84(11):1585-90. doi: 10.1016/j.resuscitation.2013.06.014. Epub 2013 Jun 28. PubMed PMID: 23816900; PubMed Central PMCID: PMC4085984.	No	Relates to chest compressions
49: García-Meca C, Carloni S, Barceló C, Jannes G, Sánchez-Dehesa J, Martínez A. Analogue transformations in physics and their application to acoustics. Sci Rep. 2013;3:2009. doi: 10.1038/srep02009. PubMed PMID: 23774575; PubMed Central PMCID: PMC3684807.	No	Relates to the use of a compressor in relation to transformation optics

50: Ochoa I, Asnani H, Bharadia D, Chowdhury M, Weissman T, Yona G. QualComp: a new lossy compressor for quality scores based on rate distortion theory. BMC Bioinformatics. 2013 Jun 8;14:187. doi: 10.1186/1471-2105-14-187. PubMed PMID: 23758828; PubMed Central PMCID: PMC3698011.	No	Relates to the compression of data
51: Biasizzo A, Novak F. Hardware accelerated compression of LIDAR data using FPGA devices. Sensors (Basel). 2013 May 14;13(5):6405-22. doi: 10.3390/s130506405. PubMed PMID: 23673680; PubMed Central PMCID: PMC3690063.	No	Relates to the compression of data
52: Patel KK, Kar A. Heat pump assisted drying of agricultural produce-an overview. J Food Sci Technol. 2012 Apr;49(2):142-60. doi: 10.1007/s13197-011-0334-z. Epub 2011 Apr 6. PubMed PMID: 23572837; PubMed Central PMCID: PMC3550864.	No	Relates to the use of a compressor in respect of drying of agricultural produce
53: Zheng X, Zhang Y, Yang M, Bamba T, Tamaki H. Stability Improvement of High-Pressure-Ratio Turbocharger Centrifugal Compressor by Asymmetrical Flow Control-Part II: Nonaxisymmetrical Self-Recirculation Casing Treatment. J Turbomach. 2013 Mar;135(2):0210071-210078. Epub 2012 Nov 1. PubMed PMID: 24891758; PubMed Central PMCID: PMC3994778.	No	Relates to flow control method to widen the operating range of a turbocharger centrifugal compressor
54: Yang M, Zheng X, Zhang Y, Bamba T, Tamaki H, Huenteler J, Li Z. Stability Improvement of High-Pressure-Ratio Turbocharger Centrifugal Compressor by Asymmetric Flow Control-Part I: Non-Axisymmetrical Flow in Centrifugal Compressor. J Turbomach. 2013 Mar;135(2):0210061-210069. Epub 2012 Nov 1. PubMed PMID: 24891757; PubMed Central PMCID: PMC3994767.	No	Part 1 of PMC3994778 above
55: Lefrancois S, Liu CH, Stock ML, Sosnowski TS, Galvanauskas A, Wise FW. High-energy similariton fiber laser using chirally coupled core fiber. Opt Lett. 2013 Jan 1;38(1):43-5. doi: 10.1364/OL.38.000043. PubMed PMID: 23282832; PubMed Central PMCID: PMC3586740.	No	Relates to the use of a grating compressor in conjunction with a pulse generator
56: Vitányi PM. Similarity and denoising. Philos Trans A Math Phys Eng Sci. 2012 Dec 31;371(1984):20120091. doi: 10.1098/rsta.2012.0091. Print 2013 Feb 13. PubMed PMID: 23277611.	No	Relates to the compression of data
57: Cheng LB, Yeh RJ. Trial encoding algorithms ensemble. Springerplus. 2013 Jul 15;2:316. doi: 10.1186/2193-1801-2-316. eCollection 2013. PubMed PMID: 27057475; PubMed Central PMCID: PMC4796158.	No	Relates to the compression of data
58: Dai W, Xiong H, Jiang X, Ohno-Machado L. An Adaptive Difference Distribution-based Coding with Hierarchical Tree Structure for DNA Sequence Compression. Proc Data Compress Conf. 2013;2013:371-380. Epub 2013 Mar 22. PubMed PMID: 26501129; PubMed Central PMCID: PMC4617277.	No	Relates to DNA sequence compression

59: Chikata Y, Onodera M, Imanaka H, Nishimura M. Temperature of gas delivered from ventilators. J Intensive Care. 2013 Nov 8;1(1):6. doi: 10.1186/2052-0492-1-6. eCollection 2013. Erratum in: J Intensive Care. 2013;1:16. PubMed PMID: 25705400; PubMed Central PMCID: PMC4336268.	No	Compares compressors to other means of equipping ventilators
60: Zhang FL, Yan L, Huang SF, Bai XJ. Correlations between quality indexes of chest compression. World J Emerg Med. 2013;4(1):54-8. doi: 10.5847/wjem.j.1920-8642.2013.01.010. PubMed PMID: 25215093; PubMed Central PMCID: PMC4129892.	No	Relates to chest compression
61: Cocchietto M, Blasi P, Lapasin R, Moro C, Gallo D, Sava G. Microencapsulation of bioactive principles with an airless spray-gun suitable for processing high viscous solutions. J Funct Biomater. 2013 Nov 19;4(4):312-28. doi: 10.3390/jfb4040312. PubMed PMID: 24956192; PubMed Central PMCID: PMC4030931.	No	Relates to the use of a compressor in prototype microparticle production
62: Hockley NS, Bahlmann F, Fulton B. Analog-to-digital conversion to accommodate the dynamics of live music in hearing instruments. Trends Amplif. 2012 Sep;16(3):146-58. doi: 10.1177/1084713812471906. PubMed PMID: 23258618; PubMed Central PMCID: PMC4040855.	No	Relates to audio compression
63: Lai PL, Tai CL, Chu IM, Fu TS, Chen LH, Chen WJ. Hypothermic manipulation of bone cement can extend the handling time during vertebroplasty. BMC Musculoskelet Disord. 2012 Oct 16;13:198. doi: 10.1186/1471-2474-13-198. PubMed PMID: 23072273; PubMed Central PMCID: PMC3524464.	No	Relates to the use of a cement compressor to assess the injectability of bone cement+
64: Jones DC, Ruzzo WL, Peng X, Katze MG. Compression of next-generation sequencing reads aided by highly efficient de novo assembly. Nucleic Acids Res. 2012 Dec;40(22):e171. doi: 10.1093/nar/gks754. Epub 2012 Aug 16. PubMed PMID: 22904078; PubMed Central PMCID: PMC3526293.	No	Relates to data compression
65: Liu Y, Tu H, Boppart SA. Wave-breaking-extended fiber supercontinuum generation for high compression ratio transform-limited pulse compression. Opt Lett. 2012 Jun 15;37(12):2172-4. doi: 10.1364/OL.37.002172. PubMed PMID: 22739845; PubMed Central PMCID: PMC3699325.	No	Relates to pulse compression
66: Mansour MM, Smaldone GC. Blow-by as potential therapy for uncooperative children: an in-vitro study. Respir Care. 2012 Dec;57(12):2004-11. doi: 10.4187/respcare.01653. PubMed PMID: 22709510.	Yes	Article compares compressor/nebulizer/face mask systems, when the device is held away from the child patient's face.
67: Cox AJ, Bauer MJ, Jakobi T, Rosone G. Large-scale compression of genomic sequence databases with the Burrows-Wheeler transform. Bioinformatics. 2012 Jun 1;28(11):1415-9. doi: 10.1093/bioinformatics/bts173. Epub 2012 May 3. PubMed PMID: 22556365.	No	Relates to data compression

68: Yavaş S, Erdogan M, Gürel K, Ilday FÖ, Eldeniz YB, Tazebay UH. Fiber laser-microscope system for femtosecond photodisruption of biological samples. Biomed Opt Express. 2012 Mar 1;3(3):605-11. doi: 10.1364/BOE.3.000605. Epub 2012 Feb 22. PubMed PMID: 22435105; PubMed Central PMCID: PMC3296545.	No	Relates to pulse compression
69: Wang K, Xu C. Fiber delivered two-color picosecond source through nonlinear spectral transformation for coherent Raman scattering imaging. Appl Phys Lett. 2012 Feb 13;100(7):71106-711063. Epub 2012 Feb 16. PubMed PMID: 22393265; PubMed Central PMCID: PMC3292591.	No	Relates to the nonlinear spectral compression of a prechirped femtosecond pulse in a fiber wavelength division multiplexer
70: Denola G, Hanhela PJ, Mazurek W. Determination of tricresyl phosphate air contamination in aircraft. Ann Occup Hyg. 2011 Aug;55(7):710-22. doi: 10.1093/annhyg/mer040. Epub 2011 Jul 5. PubMed PMID: 21730359.	No	Relates to suspected contamination of aircraft engine compressors from the engine bleed air supply
71: Miranda EG, Nascimento VP, Waisberg DR, Sousa MW, Lima MF, Silva Ddos S, Waisberg J. Inhalation anesthesia equipment for rats with provision of simultaneous anesthetic and oxygen. Acta Cir Bras. 2011 Apr;26(2):140-3. PubMed PMID: 21445478.	Yes	Considers the use of air compressors in the administration of anesthetics to rats
72: Melani AS. Effects on aerosol performance of mixing of either budesonide or beclomethasone dipropionate with albuterol and ipratropium bromide. Respir Care. 2011 Mar;56(3):319-26. doi: 10.4187/respcare.00955. Epub 2011 Jan 21. PubMed PMID: 21255509.	No	Article discusses the effects of mixing drugs using 2 nebulizers, but only one compressor. This article does not relate to the compressor itself.
73: Zhou G, Te D, Roizman B. The CoREST/REST repressor is both necessary and inimical for expression of herpes simplex virus genes. MBio. 2010 Dec 28;2(1):e00313-10. doi: 10.1128/mBio.00313-10. PubMed PMID: 21221247; PubMed Central PMCID: PMC3018283.	No	Relates to the LSD1/CoREST/REST compressor complex
74: Vandevanter DR, Geller DE. Tobramycin administered by the TOBI(®) Podhaler(®) for persons with cystic fibrosis: a review. Med Devices (Auckl). 2011;4:179-88. doi: 10.2147/MDER.S16360. Epub 2011 Sep 20. PubMed PMID: 22915944; PubMed Central. PMCID: PMC3417888.	Yes	Article investigates the efficacy of Tobramycin inhalation powder vs. Tobramycin inhalation solution delivered by a jet nebulizer powered by a compressor
75: Edelson DP, Robertson-Dick BJ, Yuen TC, Eilevstjønn J, Walsh D, Bareis CJ, Vanden Hoek TL, Abella BS. Safety and efficacy of defibrillator charging during ongoing chest compressions: a multi-center study. Resuscitation. 2010 Nov;81(11):1521-6. doi: 10.1016/j.resuscitation.2010.07.014. PubMed PMID: 20807672; PubMed Central PMCID: PMC3768293.	No	Relates to chest compressions
76: Mittal G, Kumar N, Rawat H, Chopra MK, Bhatnagar A. A radiometric study of factors affecting drug output of jet nebulizers. Indian J Pharm Sci. 2010 Jan;72(1):31-8. doi: 10.4103/0250-474X.62234. PubMed PMID: 20582187; PubMed Central PMCID: PMC2883224.	No	Article describes testing that is already done by PHRI and is accounted for in laboratory testing.

77: Nose Y, Murata K, Wada Y, Tanaka T, Fukagawa Y, Yoshino H, Susa T, Kihara C, Matsuzaki M. The impact of intermittent pneumatic compression devices on deep venous flow velocity in patients with congestive heart failure. J Cardiol. 2010 May;55(3):384-90. doi: 10.1016/j.jjcc.2010.01.002. Epub 2010 Feb 6. PubMed PMID: 20350509.	No	Relates to Intermittent pneumatic compression (IPC) has been used to prevent deep venous thrombosis
78: Omrani SM, Vatandoost H, Oshaghi MA, Shokri F, Guerin PM, Yaghoobi Ershadi MR, Rassi Y, Tirgari S. Fabrication of an olfactometer for mosquito behavioural studies. J Vector Borne Dis. 2010 Mar;47(1):17-25. PubMed PMID: 20231769.	No	Relates to the use of a compressor to generate the air supply in a wind tunnel.
79: Blakeman TC, Robinson BR, Branson RD. Battery performance of 4 intensive care ventilator models. Respir Care. 2010 Mar;55(3):317-21. PubMed PMID: 20196881.	No	Relates to the battery duration of ICU equipment that uses a compressor
80: Mesdaghinia A, Mahvi A, Saeedi R, Pishrafti H. Upflow Sludge Blanket Filtration (USBF): an Innovative Technology in Activated Sludge Process. Iran J Public Health. 2010;39(2):7-12. Epub 2010 Jun 30. PubMed PMID: 23113000; PubMed Central PMCID: PMC3481763.	No	Relates to the use of a compressor in Upflow Sludge Blanket Filtration
81: Berg EB, Picard RJ. In vitro delivery of budesonide from 30 jet nebulizer/compressor combinations using infant and child breathing patterns. Respir Care. 2009 Dec;54(12):1671-8. PubMed PMID: 19961633.	Yes	Tests for droplet size and distribution over a range of various nebulizer and compressor combinations in a home care setting.
82: Bauer A, McGlynn P, Bovet LL, Mims PL, Curry LA, Hanrahan JP. Output and aerosol properties of 5 nebulizer/compressor systems with arformoterol inhalation solution. Respir Care. 2009 Oct;54(10):1342-7. PubMed PMID: 19796414.	Yes	This study compared the aerosol properties of arformoterol delivered via 5 commonly used nebulizer systems for the home-care market.
83: Kundu ZS, Kamboj P, Sangwan S, Siwach R, Singh R, Walecha P. Management of open olecranon fractures using clamp-cum-compressor device. Indian J Orthop. 2009 Jan;43(1):50-4. doi: 10.4103/0019-5413.45324. PubMed PMID: 19753180; PubMed Central PMCID: PMC2739494.	No	Relates to the management of open olecranon fractures using clamp-cum-compressor device.
84: Si L, Zhao Y, Huang J, Li S, Zhai X, Li G. Calcium pectinate gel bead intended for oral protein delivery: preparation improvement and formulation development. Chem Pharm Bull (Tokyo). 2009 Jul;57(7):663-7. PubMed PMID: 19571409.	No	Relates to the use of a compressor to prepare calcium pectinate gel (CPG) micrometer-sized beads (microbeads) containing insulin
85: Eastwood SJ, Tucker PG, Xia H, Klostermeier C. Developing large eddy simulation for turbomachinery applications. Philos Trans A Math Phys Eng Sci. 2009 Jul 28;367(1899):2999-3013. doi: 10.1098/rsta.2008.0281. PubMed PMID: 19531518	No	Relates to compressor and turbine flows being computed using numerical large eddy simulation (NLES) / Reynolds-averaged Navier-Stokes (RANS) strategy
86: Tuominen VJ, Isola J. Linking whole-slide microscope images with DICOM by using JPEG2000 interactive protocol. J Digit Imaging. 2010 Aug;23(4):454-62. doi: 10.1007/s10278-009-9200-1. Epub 2009 May 5. PubMed PMID: 19415383; PubMed Central PMCID: PMC2896636.	No	Relates to data compression

87: Brandon CJ, Lewicky-Gaupp C, Larson KA, Delancey JO. Anatomy of the perineal membrane as seen in magnetic resonance images of nulliparous women. Am J Obstet Gynecol. 2009 May;200(5):583.e1-6. doi: 10.1016/j.ajog.2009.03.004. PubMed PMID: 19375575; PubMed Central PMCID: PMC2696929.	No	Relates to the compressor urethrae
88: Fourmaux S, Serbanescu C, Lecherbourg L, Payeur S, Martin F, Kieffer JC. Investigation of the thermally induced laser beam distortion associated with vacuum compressor gratings in high energy and high average power femtosecond laser systems. Opt Express. 2009 Jan 5;17(1):178-84. PubMed PMID: 19129886; PubMed Central PMCID: PMC2838188	No	Relates to thermally induced laser beam distortion associated with high energy 110 mJ and high average power femtosecond laser system of 11 Watts operated with vacuum compressor gratings
89: Johnson JC, Waldrep JC, Guo J, Dhand R. Aerosol delivery of recombinant human DNase I: in vitro comparison of a vibrating-mesh nebulizer with a jet nebulizer. Respir Care. 2008 Dec;53(12):1703-8. PubMed PMID: 19025706.	Yes	Compares vibrating-mesh nebulizer with jet nebulizer/compressor combination.
90: Sharaf S, Davis N. Two cases of pollution-induced bronchospasm despite HMEF filtration during 'closed-circuit' compressor-driven ventilation. Anaesthesia. 2008 Jun;63(6):680-1. doi: 10.1111/j.1365-2044.2008.05558.x. PubMed PMID: 18477297.	No	Judgment cannot be made based solely on a title. Abstract/overview not available.
91: Stein TA, DeLancey JO. Structure of the perineal membrane in females: gross and microscopic anatomy. Obstet Gynecol. 2008 Mar;111(3):686-93. doi: 10.1097/AOG.0b013e318163a9a5. PubMed PMID: 18310372; PubMed Central PMCID: PMC2775042.	No	Relates to compressor urethrae
92: Kim RJ, Kerns JM, Liu S, Nagel T, Zaszczurynski P, Lin DL, Damaser MS. Striated muscle and nerve fascicle distribution in the female rat urethral sphincter. Anat Rec (Hoboken). 2007 Feb;290(2):145-54. PubMed PMID: 17441207.	No	Relates to compressor urethrae
93: Westerman EM, De Boer AH, Le Brun PP, Touw DJ, Roldaan AC, Frijlink HW, Heijerman HG. Dry powder inhalation of colistin in cystic fibrosis patients: a single dose pilot study. J Cyst Fibros. 2007 Jul;6(4):284-92. Epub 2006 Dec 20. PubMed PMID: 17185047.	Yes	Compares dry powder inhalation of colistin to nebulised colistin in CF patients
94: Saeki Adachi Y, Itazawa T, Nakabayashi M, Fuchizawa T, Okabe Y, Ito Y, Adachi Y, Murakami G, Miyawaki T. Safety and usefulness of a novel eMotion electric mesh nebulizer in children with asthma. Allergol Int. 2006 Jun;55(2):167-71. PubMed PMID: 17075253.	No	Studies an electronic mesh nebulizer for safety and possible side effects of too much delivered dose. Study shows that safety and efficacy were comparable between the eMotion and conventional nebulizers.
95: Hsieh MY, Liu C, Ho SH, Wung SH, Chin T, Wei C. Simple device for treating prolapsing loop colostomy. J Chin Med Assoc. 2006 Mar;69(3):138-9. PubMed PMID: 16599021.	No	Relates to non-surgical treatment of stoma prolapse
96: Lin MC, Dung LR, Weng PK. An ultra-low-power image compressor for capsule endoscope. Biomed Eng Online. 2006 Feb 25;5:14. PubMed PMID: 16504138; PubMed Central PMCID: PMC1402296.	No	Relates to image compression

97: Haje SA, Haje DP. Overcorrection during treatment of pectus deformities with DCC orthoses: experience in 17 cases. Int Orthop. 2006 Aug;30(4):262-7. Epub 2006 Feb 11. PubMed PMID: 16474937; PubMed Central PMCID: PMC2532136.	No	Relates to the use of a chest compressor
98: Bolger C, Bourlion M, Leroy X, Petit D, Vanacker G, McEvoy L, Nagaria J. Maintenance of graft compression in the adult cervical spine. Eur Spine J. 2006 Aug;15(8):1204-9. Epub 2006 Jan 19. PubMed PMID: 16421744; PubMed Central PMCID: PMC3233962.	No	Relates to the compression of spinal grafts
99: Boyter AC, Carter R. How do patients use their nebuliser in the community? Respir Med. 2005 Nov;99(11):1413-7. Epub 2005 Apr 21. PubMed PMID: 16210096.	No	Analyzes maintenance regimes for home nebulisers, but not compressors
100: Anderson PJ. History of aerosol therapy: liquid nebulization to MDIs to DPIs. Respir Care. 2005 Sep;50(9):1139-50. PubMed PMID: 16122398.	No	This is only a history of aerosol therapy, not related to safety or use of compressor nebulizers.
101: Kates JM. Principles of digital dynamic-range compression. Trends Amplif. 2005;9(2):45-76. Review. PubMed PMID: 16012704; PubMed Central PMCID: PMC4111488.	No	Relates to audio compression
102: Mukherjee AK, Bhattacharya SK, Saiyed HN. Assessment of respirable dust and its free silica contents in different Indian coalmines. Ind Health. 2005 Apr;43(2):277-84. PubMed PMID: 15895842.	No	Relates to the risk of contracting pneumoconiosis whilst working in Indian coal mines
103: Jeon JH, Kim DJ, Han JH, Yeon SC, Bahng SH, Myeong BS, Chang HH. Use of a crush-reducing device to decrease crushing of suckling piglets by sows. J Anim Sci. 2005 Jun;83(6):1397-402. PubMed PMID: 15890817.	No	Relates to crush reduction in weaning pigs
104: Batz M, Baeßler S, Heil W, Otten EW, Rudersdorf D, Schmiedeskamp J, Sobolev Y, Wolf M. (3) He Spin Filter for Neutrons. J Res Natl Inst Stand Technol. 2005 Jun 1;110(3):293-8. eCollection 2005. PubMed PMID: 27308139; PubMed Central PMCID: PMC4849585.	No	Relates to neutron spin filter development
105: Dennis JH, Pieron CA. Inhaled antibiotic therapy in evidence: what delivery device? J Cyst Fibros. 2002 Dec;1(Suppl 2):209-14. PubMed PMID: 15463837.	Yes	Demonstrates that a wide range of compressed airflow rates generate aerosol output from the PARI LC PLUS equivalent to that obtained from the PulmoAide compressor and that this range of airflows encompasses many compressors commonly available in Europe
106: Umek WH, Kearney R, Morgan DM, Ashton-Miller JA, DeLancey JO. The axial location of structural regions in the urethra: a magnetic resonance study in nulliparous women. Obstet Gynecol. 2003 Nov;102(5 Pt 1):1039-45. PubMed PMID: 14672484; PubMed Central PMCID: PMC1226706.	No	Relates to the compressor urethrae
107: Sun K, Winniford W, Griffith J, Colura K, Green S, Pursch M, Luong J. Comprehensive two-dimensional gas chromatography for fast screening of wash oils. J Chromatogr Sci. 2003 Nov-Dec;41(10):506-18. PubMed PMID: 14629788.	No	Relates to the fast screening of wash oils

108: Choi WS, Murthy GG, Edwards DA, Langer R, Klibanov AM. Inhalation delivery of proteins from ethanol suspensions. Proc Natl Acad Sci U S A. 2001 Sep 25;98(20):11103-7. Epub 2001 Sep 18. PubMed PMID: 11562495; PubMed Central PMCID: PMC58690.	Yes	Explores the possibility of inhalation delivery of proteins in suspension using a commercial compressor nebuliser
109: Santos Filho SB, Barreto SM. [Occupational activity and prevalence of osteomuscular pain among dentists in Belo Horizonte, Minas Gerais State, Brazil: a contribution to the debate on work-related musculoskeletal disorders]. Cad Saude Publica. 2001 Jan-Feb;17(1):181-93. Portuguese. PubMed PMID: 11241941.	No	Relates to upper-limb and back pain prevalence in dentists
110: Gentile TR, Jones GL, Thompson AK, Rizi RR, Roberts DA, Dimitrov IE, Reddy R, Lipson DA, Gefter W, Schnall MD, Leigh JS. Demonstration of a compact compressor for application of metastability-exchange optical pumping of 3He to human lung imaging. Magn Reson Med. 2000 Feb;43(2):290-4. PubMed PMID: 10680694.	No	Relates to the compression of hyperpolarized gases
111: Chung DY, Hogan T, Brazis P, Rocci-Lane M, Kannewurf C, Bastea M, Uher C, Kanatzidis MG. CsBi(4)Te(6): A high-performance thermoelectric material for low-temperature applications. Science. 2000 Feb 11;287(5455):1024-7. PubMed PMID: 10669411.	No	Compares the thermoelectric properties of CsBi(4)Te(6) to those of Bi(2-x)Sb(x)Te(3-y)Se(y) alloys.
112: Whalen TA, Demarco AJ. An exploration of the accuracy of an invasive method for measuring the volume of specimens of Amoeba proteus. J Microsc. 1999 Oct;196(Pt 1):74-8. PubMed PMID: 10540260.	No	Relates to the use of a compressor to flatten amoebas
113: Barry PW, O'Callaghan C. An in vitro analysis of the output of salbutamol from different nebulizers. Eur Respir J. 1999 May;13(5):1164-9. PubMed PMID: 10414421.	Yes	Study is mainly about the nebulizers, not taking into account the compressors or safety of the compressor, but of a similar intended use.
114: Agertoft L, Andersen A, Weibull E, Pedersen S. Systemic availability and pharmacokinetics of nebulised budesonide in preschool children. Arch Dis Child. 1999 Mar;80(3):241-7. PubMed PMID: 10325704; PubMed Central PMCID: PMC1717853.	Yes	Compares nebulization vs intravenous administration of budesonide in preschool children with chronic asthma.
115: Gropper A, Doyle S, Dreyer K. Enterprise-scale image distribution with a Web PACS. J Digit Imaging. 1998 Aug;11(3 Suppl 1):12-7. Review. PubMed PMID: 9735424; PubMed Central PMCID: PMC3453358.	No	Relates to wavelet image compressors
116: Miles CI, Booker R. The role of the frontal ganglion in the feeding and eclosion behavior of the moth manduca sexta . J Exp Biol. 1998 Jun;201 (Pt 11):1785-98. PubMed PMID: 9576889.	No	Relates to the foregut of the adult moth Manduca sexta
117: Eltringham RJ, Varvinski A. The Oxyvent. An anaesthetic machine designed to be used in developing countries and difficult situations. Anaesthesia. 1997 Jul;52(7):668-72. PubMed PMID: 9244027.	No	Relates to an air compressor being used as a component of an Oxyvent aneasthetic machine
118: Shah PL, Scott SF, Geddes DM, Conway S, Watson A, Nazir T, Carr SB, Wallis C, Marriott C, Hodson ME. An evaluation of two aerosol delivery systems for rhDNase. Eur Respir J. 1997 Jun;10(6):1261-6. PubMed PMID: 9192926.	Yes	Studies a similar intended use to the InnoSpire Mini.

119: Huhtanen P, Brotz PG, Satter LD. Omasal sampling technique for assessing fermentative digestion in the forestomach of dairy cows. J Anim Sci. 1997 May;75(5):1380-92. PubMed PMID: 9159288.	No	Relates to a sampling technique for assessing fermentative digestion in the forestomach of dairy cows
120: Wilson RS, Muers MF. Running a domiciliary nebuliser service. Thorax. 1997 Apr;52 Suppl 2:S104-6. PubMed PMID: 9155863; PubMed Central PMCID: PMC1765868.	No	Article discusses how to run a local nebulizer service; it has nothing to do with actual treatments or safety of compressors.
121: Mclean F. Comparison of nebulizer/compressor combinations for domestic use. Eur Respir J. 1995 Nov;8(11):1985. PubMed PMID: 8620975.	Yes	Advises that the National Asthma Campaign does not recommend any specific brand of compressor nebuliser
122: Smith EC, Denyer J, Kendrick AH. Comparison of twenty three nebulizer/compressor combinations for domiciliary use. Eur Respir J. 1995 Jul;8(7):1214-21. PubMed PMID: 7589407.	Yes	Article concludes that correct matching of the nebulizer/compressor is seen to be important to ensure optimum performance.
123: Popov TA, Pizzichini MM, Pizzichini E, Kolendowicz R, Punthakee Z, Dolovich J, Hargreave FE. Some technical factors influencing the induction of sputum for cell analysis. Eur Respir J. 1995 Apr;8(4):559-65. PubMed PMID: 7664854.	No	Obtaining sputum for examination of inflammatory processes in the airways is not an intended use of the InnoSpire Mini.
124: Kendrick AH, Smith EC, Denyer J. Nebulizers--fill volume, residual volume and matching of nebulizer to compressor. Respir Med. 1995 Mar;89(3):157-9. PubMed PMID: 7746906.	Yes	Relates to the importance of matching the actual volume of solution to the correct nebuliser and compressor
125: Dodd ME, Hanley SP, Johnson SC, Webb AK. District nebuliser compressor service: reliability and costs. Thorax. 1995 Jan;50(1):82-4. PubMed PMID: 7886657; PubMed Central PMCID: PMC473721.	No	Article discusses how to run a local nebulizer service; it has nothing to do with actual treatments or safety of compressors.
126: Hung JC, Hambleton G, Super M. Evaluation of two commercial jet nebulisers and three compressors for the nebulisation of antibiotics. Arch Dis Child. 1994 Oct;71(4):335-8. PubMed PMID: 7979528; PubMed Central PMCID: PMC1030014.	Yes	Evaluates net nebulizers with compressors for nebulizing antibiotics for treatment of lung infections in CF
127: Newman SP, Pitcairn GR, Hooper G, Knoch M. Efficient drug delivery to the lungs from a continuously operated open-vent nebulizer and low pressure compressor system. Eur Respir J. 1994 Jun;7(6):1177-81. PubMed PMID: 7925889.	Yes	Study utilizes similar devices with similar intended uses.
128: Miyakoshi J, Ohtsu S, Tatsumi-Miyajima J, Takebe H. A newly designed experimental system for exposure of mammalian cells to extremely low frequency magnetic fields. J Radiat Res. 1994 Mar;35(1):26-34. PubMed PMID: 8057268.	No	Relates to the use of a gas compressor within an extremely low frequency magnetic field exposure system
129: Allen H. Carbon monoxide poisoning in a diver. Arch Emerg Med. 1992 Mar;9(1):65-6. PubMed PMID: 1567533; PubMed Central PMCID: PMC1285831.	No	Relates to the causes of carbon monoxide poisoning in divers
130: Hayata I, Tabuchi H, Furukawa A, Okabe N, Yamamoto M, Sato K. Robot system for preparing lymphocyte chromosome. J Radiat Res. 1992 Mar;33 Suppl:231-41. PubMed PMID: 1507173.	No	Relates to the incorporation of a compressor within a robotic handling system

131: Thomas SH, O'Doherty MJ, Graham A, Page CJ, Blower P, Geddes DM, Nunan TO. Pulmonary deposition of nebulised amiloride in cystic fibrosis: comparison of two nebulisers. Thorax. 1991 Oct;46(10):717-21. PubMed PMID: 1750018; PubMed Central PMCID: PMC463390.	Yes	Compares a similar device with similar intended use to a more rapid mesh nebulizer.
132: O'Callaghan C. Particle size of beclomethasone dipropionate produced by two nebulisers and two spacing devices. Thorax. 1990 Feb;45(2):109-11. PubMed PMID: 2315873; PubMed Central PMCID: PMC462319.	Yes	Compares a similar device with similar intended use to a MDI with spacer.
133: Newman SP, Woodman G, Clarke SW. Deposition of carbenicillin aerosols in cystic fibrosis: effects of nebuliser system and breathing pattern. Thorax. 1988 Apr;43(4):318-22. PubMed PMID: 3406919; PubMed Central PMCID: PMC461220.	Yes	Study utilizes similar devices with similar intended uses.
134: Easy WR, Douglas GA, Merrifield AJ. A combined oxygen concentrator and compressed air unit. Assessment of a prototype and discussion of its potential applications. Anaesthesia. 1988 Jan;43(1):37-41. PubMed PMID: 3422791.	No	Relates to a combined oxygen concentrator and air compressor for oxygen delivery.
135: Barbaree JM, Gorman GW, Martin WT, Fields BS, Morrill WE. Protocol for sampling environmental sites for legionellae. Appl Environ Microbiol. 1987 Jul;53(7):1454-8. PubMed PMID: 3662501; PubMed Central PMCID: PMC203891.	No	Relates to the presence of Legionella in sites around two hospitals
136: Sears MR, Rea HH, Fenwick J, Gillies AJ, Holst PE, O'Donnell TV, Rothwell RP. 75 deaths in asthmatics prescribed home nebulisers. Br Med J (Clin Res Ed). 1987 Feb 21;294(6570):477-80. PubMed PMID: 3103732; PubMed Central PMCID: PMC1245521.	Yes	Article discusses the deaths of asthmatic patients and attributes these deaths to inadequate use of drugs and too much reliance on domiciliary nebulizers.
137: Newman SP, Pellow PG, Clay MM, Clarke SW. Evaluation of jet nebulisers for use with gentamicin solution. Thorax. 1985 Sep;40(9):671-6. PubMed PMID: 4060108; PubMed Central PMCID: PMC460168.	No	Study looks only at the nebulizers, not the compressor.
138: Douglas JG, Rafferty P, Fergusson RJ, Prescott RJ, Crompton GK, Grant IW. Nebulised salbutamol without oxygen in severe acute asthma: how effective and how safe? Thorax. 1985 Mar;40(3):180-3. PubMed PMID: 3983885; PubMed Central PMCID: PMC460020.	Yes	Evaluates different dosages of salbutamol nebulised by an electrically powered compressor
139: De Bastiani G, Aldegheri R, Renzi Brivio L. The treatment of fractures with a dynamic axial fixator. J Bone Joint Surg Br. 1984 Aug;66(4):538-45. PubMed PMID: 6746689.	No	Relates to the treatment of fractures using a lightweight dynamic axial fixator
140: Beck BE, Wood CD, Whenham GR. Triaryl phosphate poisoning in cattle. Vet Pathol. 1977 Mar;14(2):128-37. PubMed PMID: 857397.	No	Relates to poisoning in cattle caused by triaryl phosphates escaping from a gas pipeline compressor station.
141: Shenfield GM, Evans ME, Paterson JW. The effect of different nebulizers with and without intermittent positive pressure breathing on the absorption and metabolism of salbutamol. Br J Clin Pharmacol. 1974 Aug;1(4):295-300. PubMed PMID: 22454882; PubMed Central PMCID: PMC1402431.	Yes	Studies similar devices with similar intended uses.

142: JENSEN JA, FLURY VP, SCHOOF HF. DICHLORVOS VAPOUR DISINSECTION OF AIRCRAFT. Bull World Health Organ. 1965;32:175-80. PubMed PMID: 14310904; PubMed Central PMCID: PMC2555217.	No	Relates to the testing of an aircraft disinsection system that incorporates an air compressor
143: JENSEN JA, PEARCE GW, QUARTERMAN KD. A mechanical system for dispensing known amounts of insecticidal vapours. Bull World Health Organ. 1961;24:617-22. PubMed PMID: 13789905; PubMed Central PMCID: PMC2555896.	No	Relates to the use of a miniature air compressor in a self-contained semi-automatic insecticidal vapour dispenser for use in the disinfection of aircraft
144: Morton R. Demonstration of a New Compressor. Proc R Soc Med. 1912;5(Electro Ther Sect):155. PubMed PMID: 19975843; PubMed Central PMCID: PMC2005401.	No	Relates to a diaphragm compressor
145. CARGO: effective format-free compressed storage of genomic information. Roguski Ł, Ribeca P. Nucleic Acids Res. 2016 Jul 8;44(12):e114. doi: 10.1093/nar/gkw318. PMID: 27131376	No	Relates to compression of data
146 SEMG signal compression based on two-dimensional techniques. de Melo WC, de Lima Filho EB, da Silva Júnior WS. Biomed Eng Online. 2016 Apr 18;15:41. doi: 10.1186/s12938-016-0158-1. PMID: 27091454	No	Relates to compressing surface electromyographic (SEMG) records as images
147: An Insertable Passive LC Pressure Sensor Based on an Alumina Ceramic for In Situ Pressure Sensing in High-Temperature Environments. Xiong J, Li C, Jia P, Chen X, Zhang W, Liu J, Xue C, Tan Q. Sensors (Basel). 2015 Aug 31;15(9):21844-56. doi: 10.3390/s150921844. PMID: 26334279	No	Relates to implantable passive LC pressure sensor based on an alumina ceramic material for in situ pressure sensing in high-temperature environments
148: Methane Emissions from United States Natural Gas Gathering and Processing. Marchese AJ, Vaughn TL, Zimmerle DJ, Martinez DM, Williams LL, Robinson AL, Mitchell AL, Subramanian R, Tkacik DS, Roscioli JR, Herndon SC. Environ Sci Technol. 2015 Sep 1;49(17):10718-27. doi: 10.1021/acs.est.5b02275. PMID: 26281719	No	Relates to the estimation of CH4 emissions from U.S. natural gas gathering and processing operations
149: GDC 2: Compression of large collections of genomes. Deorowicz S, Danek A, Niemiec M. Sci Rep. 2015 Jun 25;5:11565. doi: 10.1038/srep11565. PMID: 26108279	No	Relates to the compression of genomic sequences
150: QRFXFreeze: Queryable Compressor for RFX. Senthilkumar R, Nandagopal G, Ronald D. ScientificWorldJournal. 2015;2015:864750. doi: 10.1155/2015/864750. PMID: 26065027	No	Relates to the compression of data

151:- Fast lossless compression via cascading Bloom filters. Rozov R, Shamir R, Halperin E. BMC Bioinformatics. 2014;15 Suppl 9:S7. doi: 10.1186/1471-2105-15-S9-S7. PMID:25252952	No	Relates to the compression of data
152:- Medical foot pump compressors have been available for many years as an option for human powered nebulisation. Masters N. NPJ Prim Care Respir Med. 2014 Sep 18;24:14070. doi: 10.1038/npjpcrm.2014.70. No abstract available. PMID: 25230769	No	Refers to the availability of foot pump compressors
153:- Anisotropic zero-index waveguide with arbitrary shapes. Luo J, Lai Y. Sci Rep. 2014 Jul 29;4:5875. doi: 10.1038/srep05875. PMID: 25070679	No	Relates to wave compressors
154:- Feasibility of using PZT actuators to study the dynamic behavior of a rotating disk due to rotor-stator interaction. Presas A, Egusquiza E, Valero C, Valentin D, Seidel U. Sensors (Basel). 2014 Jul 7;14(7):11919-42. doi: 10.3390/s140711919. PMID: 25004151	No	Refers to compressors as an example of a rotating disc-like parts within turbomachinery
155:- Near-complete optic nerve transection by high-pressure air. Ko SW, Lee JS, Choi HS, Ko YG, Hong HP. Clin Exp Emerg Med. 2016 Sep 30;3(3):190-192. PMID: 27752640	No	Relates to orbital emphysema caused by contact with high-pressure air from car wash gun
156: Effects of dynamic range compression on spatial selective auditory attention in normal-hearing listeners. Schwartz AH, Shinn-Cunningham BG. J Acoust Soc Am. 2013 Apr;133(4):2329-39. doi: 10.1121/1.4794386. Erratum in: J Acoust Soc Am. 2013 Jun;133(6):4345. PMID: 23556599	No	Relates to audio compression
157:- Compression-based classification of biological sequences and structures via the Universal Similarity Metric: experimental assessment. Ferragina P, Giancarlo R, Greco V, Manzini G, Valiente G. BMC Bioinformatics. 2007 Jul 13;8:252. PMID: 17629909	No	Relates to data compression
158:- Oculus: faster sequence alignment by streaming read compression. Veeneman BA, Iyer MK, Chinnaiyan AM. BMC Bioinformatics. 2012 Nov 13;13:297. doi: 10.1186/1471-2105-13-297. PMID: 23148484	No	Relates to data compression

159:- The Risk Rating System for Noise-induced Hearing Loss in Korean Manufacturing Sites Based on the 2009 Survey on Work Environments. Kim YS, Cho YH, Kwon OJ, Choi SW, Rhee KY. Saf Health Work. 2011 Dec;2(4):336-47. doi: 10.5491/SHAW.2011.2.4.336. PMID: 22953218	No	Relates to noise levels generated by installed noise-generating machines and equipment.
160:- [Coronary revascularization during cardiopulmonary resuscitation. The bridge code]. Serrano Moraza A, Del Nogal Sáez F, Alfonso Manterola F. Med Intensiva. 2013 Jan-Feb;37(1):33-43. doi: 10.1016/j.medin.2012.01.007. Review. Spanish. PMID: 22402193	No	Relates to chest compressors
161:- Technique for chest compressions in adult CPR. Rajab TK, Pozner CN, Conrad C, Cohn LH, Schmitto JD. World J Emerg Surg. 2011 Dec 10;6:41. doi: 10.1186/1749-7922-6-41. PMID: 22152601	No	Relates to chest compressions
162:- Evaluation of noise propagation characteristics of compressors in tehran oil refinery center and presenting control methods. Golmohammadi R, Monazzam MR, Nourollahi M, Nezafat A, Momen Bellah Fard S. J Res Health Sci. 2010 Jun 24;10(1):22-30. PMID: 22911913	No	Relates to noise characteristics of compressors in a Tehran oil refinery
163:- Nebulised budesonide using a novel device in patients with oral steroid-dependent asthma. Vogelmeier C, Kardos P, Hofmann T, Canisius S, Scheuch G, Muellinger B, Nocker K, Menz G, Rabe KF. Eur Respir J. 2015 May;45(5):1273-82. doi: 10.1183/09031936.00152014. PMID: 25504995	Yes	Compares the efficacy of drug administration between a conventional nebuliser and a novel computer-controlled, compressor-driven inhalation system
164:- The pneuPAC ventilator with new patient valve and air compressors. Park GR, Manara AR, Bodenham AR, Moss CJ. Anaesthesia. 1989 May;44(5):419-24. PMID: 2662804	No	Relates to the air compressors designed for use with a ventilator
165:- Inhalational anaesthesia in developing countries. Part II. Review of existing apparatus. Ezi-Ashi TI, Papworth DP, Nunn JF. Anaesthesia. 1983 Aug;38(8):736-47. PMID: 6576648	No	Relates to the availability of air compressors to drive anesthetic apparatus in developing countries
166:- Improved guns for the delivery of liquid DDT spray and powder by mechanical compressors. GORDON I. J Hyg (Lond). 1947 May;45(2):173-5. No abstract available. PMID:20247173	No	Relates to the delivery of DDT powder and spray

Appendix B – Data Considered

1. Complaints in the RRDD notifications system database from 2005 to 2016

Appendix C

1. FDA reports analyzed for this review MAUDE & Recall databases from 2005 through Sep 2016.

2. Canadian Mandatory Problem Reports Canada Vigilance Adverse Reaction Online Database from 2005 through Sep 2016.

3. Australian Incident Reporting and Investigation System (IRIS). All IRIS reports from 2005 through 2012, and DAEN from July 2012 through Sep 2016.

4. EU Vigilance Reports: MHRA reports

5. Other (please identify): N/A