

The Dutch Healthcare Market

Looking good - does not mean - really clean



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The Dutch Hospital Market

Hospitalgroups	79
Hospitals	121
Offside Polyclinic	144
Universities	8
Total Number of hospital Beds:	41.000
Out of this in Universities:	7.500



Erasmus University Medical Center

<https://www.volksgezondheidenzorg.info/onderwerp/ziekenhuiszorg/cijfers-context/aanbod#node-aantal-andere-zorgprofessionals-werkzaam-ziekenhuizen>

The Dutch Nursing home Market

Nursinghomegroups	341
Nursing Homes	2057
 Total Number of Beds:	 80.000



health-i-care project in Dutch 'Nursing Home



PATIENT SAFETY GOALS



Identify Patients
Correctly



Improve Effective
Communication



Improve Safety
of High Risk
Medication



Eliminate manual
process



Reduce Risk of
Health Care
Associated
Infections

There are big differences in hygiene and cleaning status in NL

- St. Jans Gasthuis Weert 2017

	Onvoldoende	Matig	Voldoende	Goed
Werkkleding				
Handhygiëne				
Desinfectantia en pospoeler				
Reiniging en desinfectie				

- Zyderland Medisch Centrum Sittard Geleen 2017

	Onvoldoende	Matig	Voldoende	Goed
Werkkleding				
Handhygiëne				
Desinfectantia en pospoeler				
Reiniging en desinfectie				

- Nord West Ziekenhuisgroep, Almere 2017

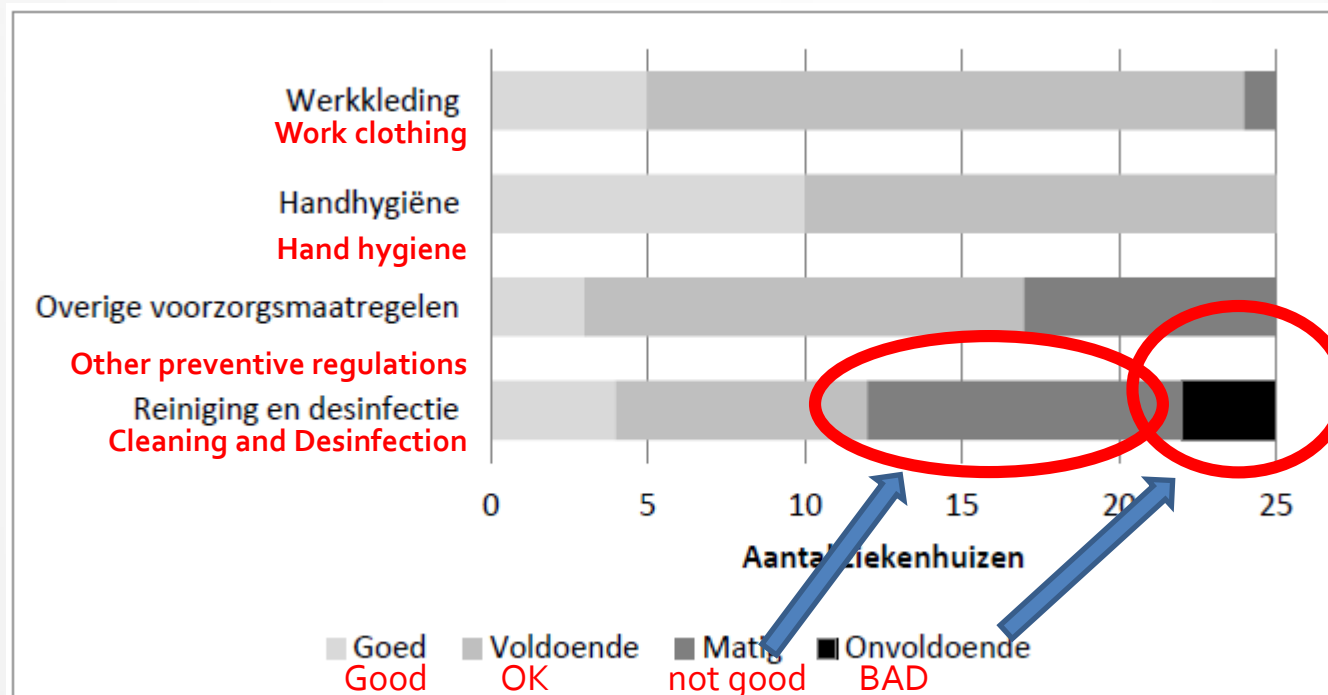
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Data supplied by:



Inspectie Gezondheidszorg en Jeugd
Ministerie van Volksgezondheid,
Welzijn en Sport

Cleaning – room for improvement !



Figuur 1. Resultaten onderwerp algemene voorzorgsmaatregelen

Data supplied by:



Inspectie Gezondheidszorg en Jeugd
Ministerie van Volksgezondheid,
Welzijn en Sport



Dr. J.A.A.M. (Ronnie) van Diemen-Steen Voorde,
Inspecteur-generaal voor de Gezondheidszorg

“Reiniging en desinfectie zijn een voortdurende bron van zorg voor de inspectie. Verantwoordelijkheden zijn niet goed belegd, de schoonmaak wordt niet goed uitgevoerd, en er is onvoldoende controle op. De afdeling infectiepreventie is onvoldoende betrokken bij het schoonmaakbeleid. Raden van Bestuur sturen onvoldoende op een deugdelijke reiniging en desinfectie in het ziekenhuis.”

* Infectiepreventie in ziekenhuizen kan echt nog beter, Utrecht 2016

Special cleaning requirements in hospitals

**Operation
Rooms**

Clean Rooms

**Infectious
Rooms**

MRSA Rooms

**Cytostatica
Rooms**

MRI Rooms

**Clean Beds
On demand**

**Isolation
Rooms**

Definitions

Contamination – The soiling of inanimate objects with potentially infectious substances. In the clinical situation, this is most likely to be organic matter but may also include inorganic substances such as dust. Such contamination may be transferred via the inanimate object to a susceptible host.

Decontamination – A process that removes or destroys contamination and therefore prevents micro organisms reaching a susceptible site in sufficient quantities to cause infection.

Cleaning – A process that physically removes contamination but does not necessarily destroy micro-organisms. Cleaning is a pre-requisite for equipment decontamination to ensure effective disinfection or sterilisation.

Disinfection – A process that reduces the number of viable micro-organism but which may not inactivate some bacterial spores.

Disinfectant – A chemical agent which under defined conditions is capable of disinfection.

Sterilisation – A process that renders an object free from viable microorganisms, including viruses and bacterial spores.

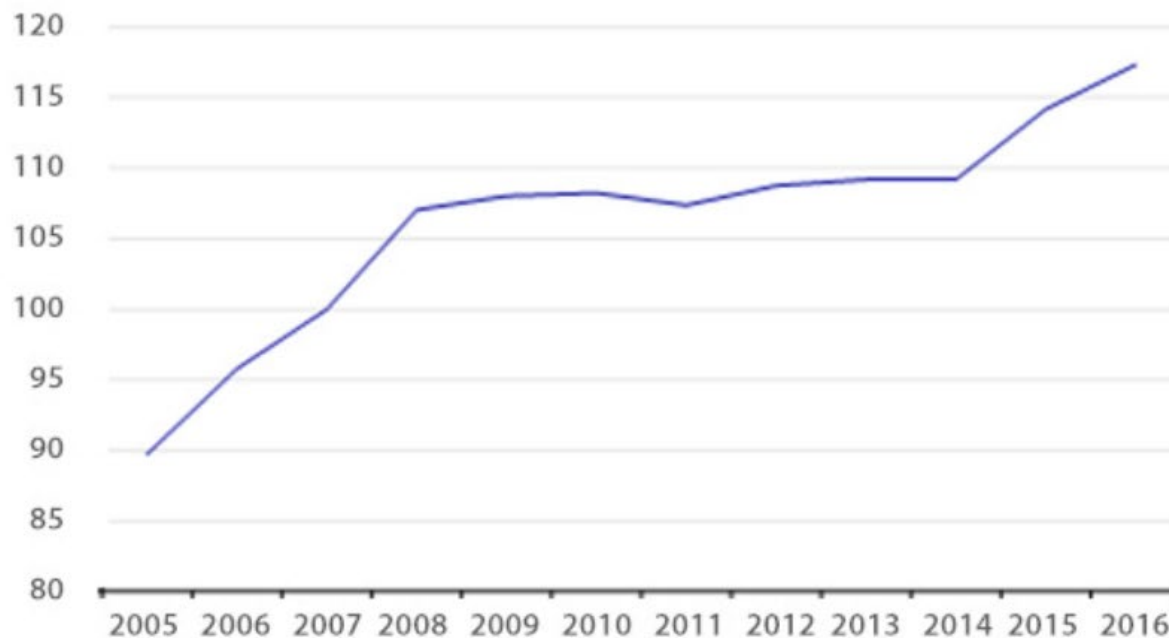
Damp Dusting – A process of cleaning which involves the use of detergent and hot water. Chemical disinfectants are not used in routine damp dusting.

Glossary of terms	
Term	Definition
Antisepsis	Destruction or inhibition of microorganisms in or on living tissue, e.g., on the skin or mucous membranes
Automated disinfection	Disinfection using machines instead of manual application. Examples incl. Hydrogen peroxide vapor and UV light machines.
Cleaning	General term for the removal of soil.
Cleaning & disinfection	Removal of soil and killing of microbes.
Decontamination	The neutralization or removal of dangerous substances, radioactivity, or germs from an object, area or person
Detergents	Water-soluble cleansing agents which combine with impurities and dirt to make them more soluble, and differ from soap in not forming a scum with the salts in hard water.
Disinfectants/disinfecting agents	Agents capable of destroying pathogenic microorganisms or inhibiting their growth activity [31]. <i>Especially</i> : chemicals that destroy vegetative forms of harmful microorganisms (such as bacteria and fungi) especially on inanimate objects but that may be less effective in destroying spores.
Disinfecting detergents	The combination of a detergent with a disinfecting agent for the simultaneous removal of soil and the killing of microbes.
Disinfection	The antimicrobial reduction of the number of viable micro-organisms to a level previously specified as appropriate for its intended further handling or use
Environmental hygiene	Cleaning and/or disinfection of a specific environment.
Environmental hygiene personnel	People in charge of cleaning and disinfecting, and maintaining the hospital environment.
Environmental hygiene services	Service within a hospital that takes care of cleaning and hygiene of the environment.
Fumigation	To apply smoke, vapor, or gas especially for the purpose of disinfecting or of destroying pests [33]. In the past, this term was often used to mean automatic disinfection. In the context of environmental hygiene, the “pests” part of the definition does not usually apply.
Pasteurization	Disinfection, usually by heat, of microorganisms that can be harmful or cause product spoilage. Frequently applied for preservation. The prevention of the multiplication of microorganisms in products .
Resistance	The inability of an anti-infective or biocide to be effective against a target microorganism.
Sanitization	Disinfection of microorganisms that pose a threat to public health.
Sterilization	Defined process used to render a surface or product free from viable organisms, including bacterial spores. It also frequently includes the objective of allowing the maintenance of the sterile state.
Terminal cleaning	Cleaning and disinfection of a room after a patient carrying a dangerous/resistant pathogen leaves the room.
Tolerance	Decreased effect of an active agent against a target microorganism and requiring increased concentration or other effects to be effective.
https://aricjournal.biomedcentral.com/articles/10.1186/s13756-018-0420-3	

The Dutch Market

Revenue development cleaning companies in NL

Omzetontwikkeling schoonmaakbedrijven (indexcijfers, 2007 = 100)



Bron: CBS, bewerking: Rabobank

The 10 largest cleaning companies turnover (2013)				
				Healthcare
Hago Nederland (Vebego International)			320,7 M€	yes
ISS			288,7 M€	yes
CSU			256,0 M€	yes
Asito			219,0 M€	yes
GOM (Facilicom)			209,0 M€	yes
EW Facility Services			70,9 M€	yes
Dolmans Groep			67,9 M€	yes
Schoongroep Nederland: Now Schoonster			63,8 M€	yes
Hectas Facility Services			62,0 M€	yes
Succes (DieDrie): Now: Holland Schoonmaak Groep			31,8 M€	no

www.statline.nl & individual company websites
<https://www.cbs.nl/nl-nl/achtergrond/2014>



37.000 m2



New contract in April 2018 for The Hospital Emmen (Treant group)

All hospitals have their own cleaning guidelines



... and their own decision matrix for choosing a cleaning company

Quality Criterion "Cleaning Personnel"	Points available	Not Applicable	Medium (50%)	Good (80%)	Excellent (100%)	Weighted points allocated
Experience in industry	4		√			3.2
Activity specific experience	2				√	2
Turnover and absenteeism	0	√				
Basic training	4				√	4
Additional training and qualifications	1		√			0.5
Activity specific training	2			√		1.6
Ongoing training	2		√			1
Other skills	0	√				
Career opportunities	2		√			1
Recruitment and selection, vetting	2			√		1.4
Salary and benefit levels	1		√			0.5
Staff-	0	√				
employer relations						
Working conditions	1		√			0.5
Health and safety	3				√	3
Other criteria	0	√				
Total	24					18.7

Quality Criterion "Contract Infrastructure"	Points available	Not applicable	Medium (50%)	Good (80%)	Excellent (100%)	Weighted points allocated
Equipment maintenance and use	6				√	6
Cleaning adapted to the building's characteristics	3				√	3
Uniforms and safety equipment	5		√			2.5
Products / methods used	2				√	2
Environmental, health and hygiene considerations	7				√	7
Other criteria	2		√			1
Total	25					21.5

Quality Criterion "Contract Management"	Points available	Not applicable	Medium (50%)	Good (80%)	Excellent (100%)	Weighted points allocated
Contract specific know-how of the contract manager and the management team	3				√	3
Availability	1			√		0.8
Response time	2			√		1.6
Operational planning	1			√		0.8
Terms of delivery and back-up capacity	2		√			1
General and client specific procedures	0	√				
Reporting, communication and response to special	6		√			3

PPE helps you drive sick leave levels down

You might have to clean anything from Ebola to „just“ Noro viruses



<https://gom.nl/meerderheid-ziekenhuizen-desinfecteert-ebola-ruimten-zelf->

Achtung - Hygienemaßnahmen
Besucher bitte beim Pflegepersonal melden

Personal (kein Kontakt mit Patient und/oder Körperflüssigkeit)	Personal / Grundpflege (Kontakt mit Patient und/oder Körperflüssigkeit)	Reinigungskräfte	Angehörige / Besucher
• Kittel • Einweg-Handschuhe • Mund-Nasenschutz	• Kittel • Schürze • Einweg-Handschuhe • Mund-Nasenschutz	• Schürze • Haushalts-Handschuhe • Mund-Nasenschutz	• Kittel • Einweg-Handschuhe • Mund-Nasenschutz

stets und von allen: HÄNDE-DESINFEKTION!

- vor und nach Patientenkontakt
- nach Ausziehen der Schutzhandschuhe
- beim Verlassen des Zimmers
- Haushaltshandschuhe desinfizieren

Wird desinfiziert
Wird desinfiziert
Wird desinfiziert

<https://www.chemanager-online.com/themen/reinraumtechnik/norovirenausbruch-im-krankenhaus-alles-laengst-routine>

Keeping your employees safe

Ongoing training on infectious diseases, PPE and procedures is a **MUST!**



Univ. Klinik f. Krankenhaushygiene
und Infektionskontrolle



HYGIENERICHTLINIE

AKH-KHH-RL-090

Middle East respiratory syndrome (MERS – CoV)

gültig ab: 30.07.2015

Version 07

Seite 1 von 12

1 GELTUNGSBEREICH UND ZWECK

Diese Richtlinie beschreibt die hygienisch korrekte Vorgangsweise im Umgang mit PatientInnen, die eine mögliche oder nachgewiesene Infektion mit dem neuartigen Coronavirus (MERS – CoV) aufweisen.

2 MITGELTENDE DOKUMENTE

- Hygienrichtlinien der Univ. Klinik für Krankenhaushygiene und Infektionskontrolle (<http://www.meduniwien.ac.at/krankenhaushygiene>)
- Practical Guidelines for Infection Control in Health Care Facilities, WHO 2004
- Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care (WHO/CDS/EPR/2007.6)
- Hygienemaßnahmen bei Schwerem Akutem Respiratorischem Syndrom – SARS, Bundesministerium für Gesundheit und Frauen, August 2003
- Empfehlungen des Robert-Koch-Institutes für die Hygienemaßnahmen und Infektionskontrolle bei Patienten mit Schwerem Akutem Respiratorischem Syndrom (SARS), (17.3.2003)
- Infection prevention and control during health care for probable or confirmed cases of novel coronavirus (nCoV) infection, WHO 6 May 2013
- WHO Middle East respiratory syndrome coronavirus: Case definition for reporting to WHO, Interim case definition as of 14 July 2015: http://www.who.int/csr/disease/coronavirus_infections/case_definition/en/
- WHO Risk Assessment MERS-CoV vom 24. April 2014: http://www.who.int/csr/disease/coronavirus_infections/MERS_CoV_RA_20140424.pdf
- WHO Update on MERS-CoV transmission from animals to humans, and interim recommendations for at-risk groups vom 13. Juni 2014: <http://www.who.int/csr/don/13-june-2014-mers-cov-transmission/en/>



Actions in case of incident

e.g. skin contact with possible pathogenous substance

	Risico accident	HBV	HCV	hiv
	Globale Inschatting	Uitsplitsing naar risico per virus		
Spatien bloed op intacte huid	Geen			
Spatien bloed op niet-intacte huid (= actief eczeem of verse schaafwond)	Laag	+	-	-
Intensief bloedcontact bij open wonden (steekpartij, snijwonden)	Hoog	++	+	+
Bloed of met bloed besmette vloeistof op slijmvlies	Hoog	++	+	+
Andere mogelijk infectieuze vloeistof op slijmvlies	Laag	+	-	-
Bijtaccident, risico voor gebetene (speeksel van dader in verse wond gebetene)	Laag	+	-	-
Bijtaccident tijdens vechtpartij, risico voor gebetene (speeksel met bloed van dader in verse wond gebetene)	Hoog	++	+	+
Bijtaccident, risico dader (bloed van gebetene op mondslijmvlies van dader)	Hoog	++	+	+
Oppervlakkige huidverwonding bij slachtoffer zonder zichtbaar bloed (kras)	Geen			

Verwonding door subcutaan gebruikte injectienaald (insulienaald / heparienaald)	Laag	+	-	-
Verwonding door intramusculair gebruikte injectienaald zonder zichtbaar bloed van bron	Laag	+	-	-
Verwonding door intramusculair gebruikte injectienaald met zichtbaar bloed van bron	Hoog	++	+	+
Verwonding door intracutaan of subcutaan gebruikte hechtnaald zonder zichtbaar bloed van bron	Laag	+	-	-
Verwonding door andere hechtnaald dan bovengenoemd of hechtnaald met zichtbaar bloed van bron	Hoog	++	+	+
Verwonding door naald of lancet gebruikt voor vingerprik (bijvoorbeeld glucosebepaling)	Hoog	++	+	+
Percutane verwonding, anders dan bovengenoemd, bijvoorbeeld infusienaald, operatiekamerinstrumenten	Hoog	++	+	+

Symbolen in tabel:
 - betekent risico op overdracht van betreffende virus verwaarloosbaar
 + betekent risico op overdracht van betreffende virus laag
 ++ betekent risico op overdracht van betreffende virus hoog

Indien er bij een accident geen risico is op virusoverdracht hoeft het stappenplan niet verder doorlopen te worden.

Bij een hoogrisicoaccident zijn maatregelen nodig tegen HBV, HCV en hiv.

Bij een laagrisicoaccident zijn alléén maatregelen nodig tegen HBV.

Some typical errors in cleaning an infectious room

- **Cleaning staff does not wear the right protective clothing entering an isolation room**
- **Incorrent detergents are being used, as the staff is not correctly trained**
- **The dose and the exposure time is not correctly excecuted**
- **Cleaning wipes are not being disposed of, but reused**
- **.....**

Alternative business models

On demand cleaning

Room cleaning Management



Ward 06
Room status overview



MENU



Clean
5



Infected
2



Contaminated
3



Infected
2

Ward	Room	Status	Time of Decon	Remaining Time	Remark
Ward 06	6.01		8:00	40 min.	Blocked
Ward 06	6.02		✓ 8:20		
Ward 06	6.03		✓ 8:40		
Ward 06	6.04		✓ 9:00		
Ward 06	6.05		✓ 9:20		
Ward 06	6.06				
Ward 06	6.07		×		
Ward 06	6.08		×		Blocked
Ward 06	6.09		×		
Ward 06	6.10		×		
Ward 06	6.11		×		

Easy task management for cleaning staff





Thanks for your attention

..... and always keep your hands clean 😊

