



Perceptions and Willingness of Young Citizens for Covid-19 Vaccination in Indonesia

Meidi Saputra¹(✉) and Jauhari Oka Reuwpassa²

¹ Law and Citizenship Department, Universitas Negeri Malang, Malang, Indonesia
meidi.saputra.fis@um.ac.id

² Health Promotion, Puskesmas Dinoyo, Dinas Kesehatan Kota Malang, Malang, Indonesia
jauhari.oka@alumni.ui.ac.id

Abstract. The purpose of this study is to describe the perceptions and willingness of young citizens to be vaccinated against Covid 19. This study uses an online survey from Google Form with 376 respondents. The results of this study found that the average age of the respondents was 19 years, and the majority were female. A total of 35 people () refused to be vaccinated against Covid 19. They were effective that vaccines were dangerous, vaccines ineffective, vaccines were not halal, felt healthy and did not want to pay to be vaccinated. The overview of the survey results shows that respondents stated that they had to be vaccinated even though some of them refused to be vaccinated against Covid 19.

Keywords: Perception · Willingness · Young Citizen · Vaccine · Covid 19

1 Introduction

Covid 19 has become a disaster and a problem in the health sector that has hit the whole world. Covid 19 first appeared in Wuhan, China in 2019 [1, 2]. The World Health Organization (WHO) as a world health organization stated that Covid 19 became a global pandemic on March 11, 2020 [3, 4]. The number of confirmed cases of Covid 19 globally as of October 4, 2021 was 234,609,003 and 4,797,368 deaths [5].

The first Covid 19 case in Indonesia was on March 02, 2020 as many as 2 cases [6, 7]. It is suspected that Indonesian citizens made contact with Japanese citizens [8]. Seeing the development of Covid 19 cases increasing, the President of Indonesia on April 17, 2020 declared that Covid 19 was a national disaster through KEPPRES No. 12 of 2020 [9]. The number of Covid 19 cases in Indonesia as of October 4, 2021 with positive cases as many as 4,221,610, recovering as many as 4,049,449 and cases dying 142,338 [10].

Seeing the development of Covid-19 cases increasing, the Indonesian government urges and invites the public to apply the 3M principles. The 3M principles consist of wearing a mask, keeping a distance and washing hands. The 3M principle is a package of health protocols used to prevent the transmission and spread of Covid 19 in the community. The application of 3M is a government directive to the community so that it can be implemented in daily life and get used to a new lifestyle during the Covid 19 pandemic

Table 1. The Level of Efficacy of Each Type of Vaccine

No	Vaccine Type	Efficacy Level	Reference
1.	Moderna	94,1%	(Baden et al., 2021) [17]
2.	Sinovac	65,3%	(WHO et al., 2021) [5]
3.	AstraZeneca	62,1%	(Mahase, 2020) [18]
4.	Sinopharm	79,34%	(Kyriakidis et al., 2021) [19]
5.	Pfizer	95%	(Polack et al., 2020) [20]

[11]. In an effort to reduce Covid 19 cases, the application of health protocols such as the 3M principle is still not maximal enough to reduce the number of transmissions. Direct transmission via the virus can still occur in humans. For this reason, vaccination is needed as an effort to prevent the spread of Covid 19.

After the emergence of Covid 19 in China, several academic laboratories and the pharmaceutical industry around the world began to develop more than 100 different types of vaccines [12]. Vaccines are an effective step in creating immune memory long enough to control an infectious disease [13]. Over the years, vaccines have been shown to reduce cases of infectious diseases through the formation of immunity or the immune system in humans [14]. The Covid 19 vaccine was developed to help the formation of immunity in the human body so that it is expected to be able to form a strong immune system and have an impact on reducing the number of positive cases of Covid 19.

In Indonesia, the Covid 19 vaccination program was first implemented starting January 13, 2021. The first batch of vaccines was given to health workers, public service workers and the elderly (elderly). Then, for the second wave, it is given to the general public and vulnerable groups. The Indonesian government through the Indonesian Ministry of Health targets that by March 2022 there will be 181.5 million people who have received the Covid 19 vaccine [15]. The types of vaccines used are Sinovac, AstraZeneca, Sinopharm, Moderna, Pfizer-BioNTech, Novavax and Merah Putih-BioFarma [16]. The level of efficacy of each type of vaccine is described in Table 1.

Based on the explanation of the problems above, this study seeks to describe how young citizens perceive and are willing to vaccinate against COVID-19 in Indonesia.

2 Method

This study was conducted by online survey through google form. The distribution of the questionnaires was carried out during May to July 2021. The questionnaire contained a statement stating that the respondents agreed or disagreed with the vaccination and the reasons. In addition, we also asked the respondent's understanding of several types of vaccines which currently have obtained distribution permits from the Ministry of Health of the Republic of Indonesia. The population in this study were students from East Java with a sample of 376 respondents. Data is presented in the form of a bar chart that displays values and percentages.

3 Result and Discussion

3.1 Demographic Characteristic

3.1.1 Age

Average age of respondents in this research is 19 years old. The largest number of respondents was also 19 years old. Respondents over the age of 18 at the time of the survey were the targets who were already allowed to be vaccinated. So that their willingness to be vaccinated reflects the number of respondents with the same age range. Based on a survey report conducted by the Ministry of Health of the Republic of Indonesia in collaboration with the Indonesian Technical Advisory Group on Immunization (ITAGI), UNICEF and WHO, it was found that the age group of 18–25 years is the most age category that states their willingness to be vaccinated in Indonesia. [21]. Then on a larger scale of research, targeting the global population, followed by 19 world countries, it was found that the 18–24 year age range was the largest respondent who stated his readiness to be vaccinated [22] (Fig. 1).

3.1.2 Distribution Among Respondents

Most respondents in this study were female with 60% of the total respondents participating. From various research results in other countries such as China [23], Turkey [13] Congo Republic [24], Poland [25], Japan [26], Australia [27] it was also found that the majority of the sexes who expressed their willingness to be vaccinated were woman. The same result was also found in research conducted by Lazarus [22], which conducted a survey of vaccine acceptance in 19 countries that the female gender expressed the most willingness (Fig. 2).

3.2 Perception and Willingness of Young Citizens for Covid-19 Vaccination in Indonesia

3.2.1 Respondent are Agreed to be Vaccinated

Surprisingly, more than 90% of respondents said they were willing to be vaccinated. This illustrates that generation Z respondents when asked whether they agreed to be

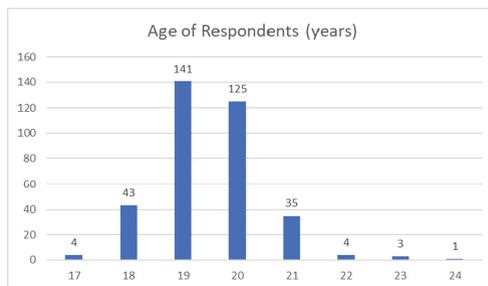


Fig. 1. Age of Respondents. Source: Research Data

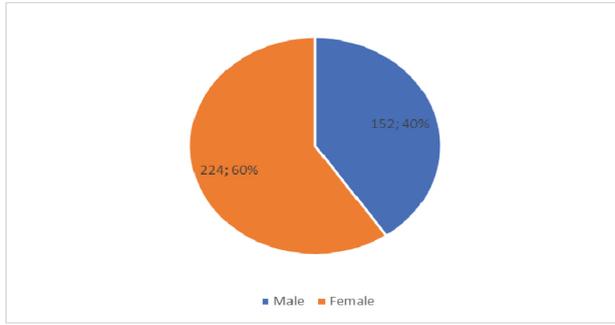


Fig. 2. Sex Distribution Among Respondents. Source: Research Data

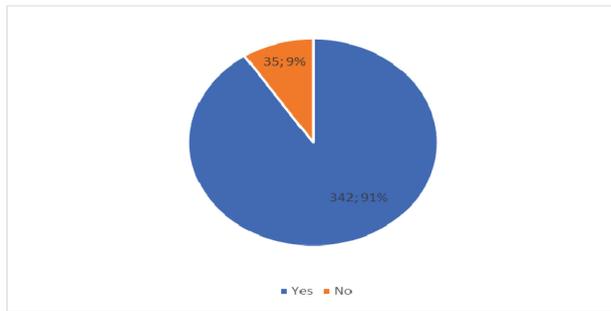


Fig. 3. Respondent are agreed to be vaccinated. Source: Research Data

vaccinated the majority agreed. The willingness of young citizens to be vaccinated is an attitude and behavior that reflects a good citizen. It is called so, considering that when the state is trying to prevent and deal with the Covid 19 pandemic, citizens are involved and participate in helping the problems facing the country. Indirectly, citizens who participate in dealing with this problem show their skills as citizens [28].

In addition, the willingness to be vaccinated by citizens also helps to create herd immunity in the community. Several epidemiologists assert that the existence of a vaccine does not guarantee that a person can be safe from transmission of Covid 19. However, if the worst possibility is that a citizen is infected with this virus and he has been vaccinated, the effects caused by transmission are not severe and avoid the risk of death.

Furthermore, if a large number of the population in the community has been vaccinated, this can create a condition of herd immunity as stated by epidemiologists. If the condition of the community has reached the stage of what is called herd immunity, it is possible to hope to start a normal life as before [29–34] (Fig. 3).

3.3 Reason Why the Respondents are Not Agreed to be Vaccinated

There are 35 respondents who disagree with vaccine. Most their reason are vaccine is harmful, vaccine is ineffective, they don't need to be vaccinated, vaccines are not halal and don't want to pay for vaccines, etc. The refusal of vaccination is an old phenomenon

and has become an important issue in the realm of global health [35, 36]. At least a number of countries in Middle East and North Africa, Sub-Saharan Africa, Eastern Europe, Central Asia, Middle and South America are countries with low rates of receiving vaccinations [37]. The refusal of vaccination is motivated by various reasons, including side effects, religious factors, political beliefs, lack of knowledge, misinformation, etc. [38–41].

In a study conducted in Pakistan, for example, the rejection of vaccination is due to the dogma in society that the body has natural immunity [42]. Meanwhile, in research in Turkey, it was stated that the most people’s reason for refusing vaccines was because they were afraid of side effects and were not sure about the vaccine’s efficacy [13] (Fig. 4).

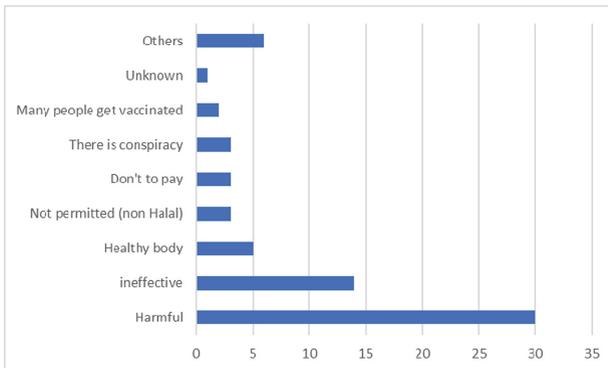


Fig. 4. Reason why the respondents are not agreed to be vaccinated. Source: Research Data

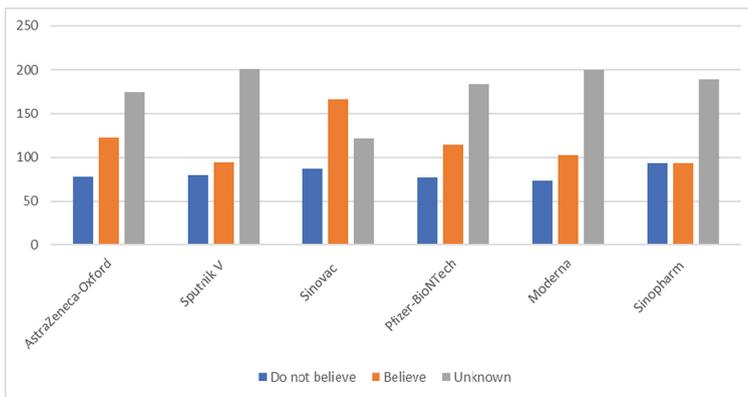


Fig. 5. The Perception of the Respondent Toward Type of Vaccine. Source: Research Data

3.4 The Perception of the Respondent Toward Type of Vaccine

In this study, it was revealed that our respondents who were still at the young age category chose not to believe in the vaccine brands asked in the research questionnaire. However, apart from that, respondents in this research tend to believe in the Sinovac vaccine and the AstraZeneca-Oxford vaccine. Meanwhile, the results of the Institute of Global Health Innovation research conducted in March and May 2021, targeting 15 countries in the world (Australia, Canada, Denmark, France, Germany, Israel, Italy, Japan, Norway, Singapore, South Korea, Spain, Sweden, United Kingdom, and the United States) found that the Pfizer vaccine is the most trusted vaccine for the Covid-19 vaccination program (Fig. 5).

4 Conclusion

At least 80% of respondents said they were enthusiastic about being vaccinated, even though 40% to 50% did not know the brand of vaccine used in Indonesia. A small proportion of respondents who did not want to be vaccinated stated that the vaccine was unsafe, ineffective and they felt their bodies were healthy.

Acknowledgment. We would like to thank the State University of Malang for funding this research.

References

1. D. S. Hui *et al.*, “The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health — The latest 2019 novel coronavirus outbreak in Wuhan, China,” *Int. J. Infect. Dis.*, vol. 91, pp. 264–266, 2020, <https://doi.org/10.1016/j.ijid.2020.01.009>.
2. L. Lin, L. Lu, W. Cao, and T. Li, “Hypothesis for potential pathogenesis of SARS-CoV-2 infection—a review of immune changes in patients with viral pneumonia,” *Emerg. Microbes Infect.*, vol. 9, no. 1, pp. 727–732, 2020, <https://doi.org/10.1080/22221751.2020.1746199>.
3. J. Bedford *et al.*, “COVID-19: towards controlling of a pandemic,” *Lancet*, vol. 395, no. 10229, pp. 1015–1018, 2020, [https://doi.org/10.1016/S0140-6736\(20\)30673-5](https://doi.org/10.1016/S0140-6736(20)30673-5).
4. D. Cucinotta and M. Vanelli, “WHO declares COVID-19 a pandemic,” *Acta Biomed.*, vol. 91, no. 1, pp. 157–160, 2020, <https://doi.org/10.23750/abm.v91i1.9397>.
5. WHO, “Interim Recommendations For Use Of The Pfizer–BioNTech COVID-19 vaccine, BNT162b2, Under Emergency Use Listing-Interim Guidance First,” *World Heal. Organ.*, no. January, pp. 1–7, 2021, [Online]. Available: WHO/2019-nCoV/vaccines/SAGE_recommendation/BNT162b2/2021.1.
6. H. Khusairi, “Peran Masyarakat Dan Mahasiswa Dalam Mengatasi Covid-19 Melalui Pembentukan Kelompok Relawan Sat Gugus,” *Al Dzahab Islam. Econ. J.*, vol. 1, no. 1, pp. 2020–2038, 2020, [Online]. Available: <https://nasional.kompas.com/read/2020/04/25/15472271/update-25-april-kasus-covid-19-di->
7. A. Susilo *et al.*, “Coronavirus Disease 2019: Tinjauan Literatur Terkini,” *J. Penyakit Dalam Indones.*, vol. 7, no. 1, p. 45, 2020, <https://doi.org/10.7454/jpdi.v7i1.415>.

8. Y. Sumarni, "Pandemi Covid 19: Tantangan Ekonomi dan Bisnis," *Al-Intaj J. Ekon. dan Perbank. Syariah*, vol. 2, no. 1, pp. 46–58, 2020.
9. D. Tuwu, "Kebijakan Pemerintah Dalam Penanganan Pandemi Covid-19," *J. Publichuo*, vol. 3, no. 2, p. 267, 2020, <https://doi.org/10.35817/jpu.v3i2.12535>.
10. Satuan Tugas Penanganan Covid-19, "Data Sebaran," 2021. <https://covid19.go.id/>.
11. Ismail Marzuki *et al.*, *COVID-19: Seribu Satu Wajah*. Medan: Yayasan Kita Penulis, 2021.
12. V. V. L. Albani, J. Loria, E. Massad, and J. P. Zubelli, "The impact of COVID-19 vaccination delay: A data-driven modeling analysis for Chicago and New York City," *Vaccine*, vol. 39, no. 41, pp. 6088–6094, 2021, <https://doi.org/10.1016/j.vaccine.2021.08.098>.
13. B. Akarsu, D. Canbay Özdemir, D. Ayhan Baser, H. Aksoy, İ. Fidancı, and M. Cankurtaran, "While studies on COVID-19 vaccine is ongoing, the public's thoughts and attitudes to the future COVID-19 vaccine," *Int. J. Clin. Pract.*, vol. 75, no. 4, pp. 1–10, 2021, <https://doi.org/10.1111/ijcp.13891>.
14. A. Mortellaro and P. Ricciardi-Castagnoli, "From vaccine practice to vaccine science: The contribution of human immunology to the prevention of infectious disease," *Immunol. Cell Biol.*, vol. 89, no. 3, pp. 332–339, 2011, <https://doi.org/10.1038/icb.2010.152>.
15. N. M. Nasir, I. S. Joyosemito, B. Boerman, and Ismaniah, "Kebijakan Vaksinasi COVID-19 : Pendekatan Pemodelan Matematika Dinamis Pada Efektivitas Dan Dampak Vaksin Di Indonesia," *J. ABDIMAS*, vol. 4, no. 2, pp. 191–204, 2021.
16. S. N. Aeni, "7 Jenis Vaksin Covid-19 yang Ditetapkan oleh Menkes," 2021. <https://katadata.co.id/sortatobing/berita/60decbce52146/7-jenis-vaksin-covid-19-yang-ditetapkan-oleh-menkes>.
17. L. R. Baden *et al.*, "Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine," *N. Engl. J. Med.*, vol. 384, no. 5, pp. 403–416, 2021, <https://doi.org/10.1056/nejmoa2035389>.
18. E. Mahase, "Covid-19: UK government asks regulator to assess Oxford vaccine as questions are raised over interim data," *BMJ*, vol. 371, p. m4670, 2020, <https://doi.org/10.1136/bmj.m4670>.
19. N. C. Kyriakidis, A. López-Cortés, E. V. González, A. B. Grimaldos, and E. O. Prado, "SARS-CoV-2 vaccines strategies: a comprehensive review of phase 3 candidates," *npj Vaccines*, vol. 6, no. 1, 2021, <https://doi.org/10.1038/s41541-021-00292-w>.
20. F. P. Polack *et al.*, "Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine," *N. Engl. J. Med.*, vol. 383, no. 27, pp. 2603–2615, 2020, <https://doi.org/10.1056/nejmoa2034577>.
21. Kementerian Kesehatan Republik Indonesia, ITAGI, WHO, and UNICEF, "Survei Penerimaan Vaksin COVID-19 di Indonesia," 2020.
22. J. V. Lazarus *et al.*, "A global survey of potential acceptance of a COVID-19 vaccine," *Nat. Med.*, vol. 27, no. 2, pp. 225–228, 2021, <https://doi.org/10.1038/s41591-020-1124-9>.
23. J. Wang *et al.*, "Acceptance of covid-19 vaccination during the covid-19 pandemic in china," *Vaccines*, vol. 8, no. 3, pp. 1–14, 2020, <https://doi.org/10.3390/vaccines8030482>.
24. J. D. Ditekemena *et al.*, "Covid-19 vaccine acceptance in the democratic republic of congo: A cross-sectional survey," *Vaccines*, vol. 9, no. 2, pp. 1–11, 2021, <https://doi.org/10.3390/vaccines9020153>.
25. A. Paul *et al.*, "Peoples' understanding, acceptance, and perceived challenges of vaccination against COVID-19: A cross-sectional study in Bangladesh," *PLoS One*, vol. 16, no. 8 August, pp. 1–16, 2021, <https://doi.org/10.1371/journal.pone.0256493>.
26. M. Machida *et al.*, "Acceptance of a covid-19 vaccine in japan during the covid-19 pandemic," *Vaccines*, vol. 9, no. 3, pp. 1–11, 2021, <https://doi.org/10.3390/vaccines9030210>.
27. H. Seale *et al.*, "Examining Australian public perceptions and behaviors towards a future COVID-19 vaccine," *BMC Infect. Dis.*, pp. 1–9, 2020, <https://doi.org/10.1101/2020.09.29.20204396>.

28. M. Saputra, I. H. A. Siddiq, R. P. Prabawangi, and S. Untari, "The effect of perceived parenting styles on civic skills among East Java educators," in *Empowering Civil Society in the Industrial Revolution 4.0*, 2021, pp. 178–182, <https://doi.org/10.1201/9781003180128-34>.
29. K. Kadkhoda, "Herd Immunity to COVID-19," *Am. J. Clin. Pathol.*, vol. 155, no. 4, pp. 471–472, 2021, <https://doi.org/10.1093/ajcp/aqaa272>.
30. D. Hodgson *et al.*, "The potential for vaccination-induced herd immunity against the SARS-CoV-2 B.1.1.7 variant," *Eurosurveillance*, vol. 26, no. 20, 2021, <https://doi.org/10.2807/1560-7917.ES.2021.26.20.2100428>.
31. J. G. Kahambing, "Radicalizing moral conservatism in herd immunity during COVID-19," *J. Public Health (Oxf.)*, pp. 1–2, 2021, <https://doi.org/10.1093/pubmed/fdab307>.
32. O. Dyer, "Covid-19: Delta infections threaten herd immunity vaccine strategy," *BMJ*, vol. 374, no. August, pp. 1–2, 2021, <https://doi.org/10.1136/bmj.n1933>.
33. C. R. MacIntyre, V. Costantino, and M. Trent, "Modelling of COVID-19 vaccination strategies and herd immunity, in scenarios of limited and full vaccine supply in NSW, Australia," *Vaccine*, no. xxxx, pp. 0–7, 2021, <https://doi.org/10.1016/j.vaccine.2021.04.042>.
34. A. Jafar *et al.*, "Keberkesanan Program Imunisasi COVID-19 Kebangsaan di Malaysia Timur," *Malaysian J. Soc. Sci. Humanit.*, vol. 6, no. 7, pp. 1–11, 2021, <https://doi.org/10.47405/mjssh.v6i7.859>.
35. R. Ransing, E. Dashi, S. Rehman, A. Chepure, V. Mehta, and G. K. Kundadak, "COVID-19 anti-vaccine movement and mental health: Challenges and the way forward," *Asian J. Psychiatry J.*, vol. 58, no. February 2021, pp. 1–2, 2021.
36. W. Feleszko, P. Lewulis, A. Czarniecki, and P. Waszkiewicz, "Flattening the curve of covid-19 vaccine rejection—an international overview," *Vaccines*, vol. 9, no. 1, pp. 1–8, 2021, <https://doi.org/10.3390/vaccines9010044>.
37. M. Sallam, "Covid-19 vaccine hesitancy worldwide: A concise systematic review of vaccine acceptance rates," *Vaccines*, vol. 9, no. 2, pp. 1–15, 2021, <https://doi.org/10.3390/vaccines9020160>.
38. U. Institute of Global Health Innovation, Imperial College London, "COVID-19 Global Behaviours and Attitudes The Year in Review," 2021.
39. I. Ullah, K. S. Khan, M. J. Tahir, A. Ahmed, and H. Harapan, "Myths and conspiracy theories on vaccines and COVID-19: Potential effect on global vaccine refusals," *Vacunas*, vol. 22, no. 2, pp. 93–97, 2021, <https://doi.org/10.1016/j.vacun.2021.01.001>.
40. R. Prieto Curiel and H. González Ramírez, "Vaccination strategies against COVID-19 and the diffusion of anti-vaccination views," *Sci. Rep.*, vol. 11, no. 1, pp. 1–13, 2021, <https://doi.org/10.1038/s41598-021-85555-1>.
41. T. Burki, "The online anti-vaccine movement in the age of COVID-19," *Lancet Digit. Heal.*, vol. 2, no. 10, pp. e504–e505, 2020, [https://doi.org/10.1016/s2589-7500\(20\)30227-2](https://doi.org/10.1016/s2589-7500(20)30227-2).
42. M. J. Tahir *et al.*, "Population preferences and attitudes towards COVID-19 vaccination: a cross-sectional study from Pakistan," *BMC Public Health*, vol. 21, no. 1, pp. 1–12, 2021, <https://doi.org/10.1186/s12889-021-11814-5>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

