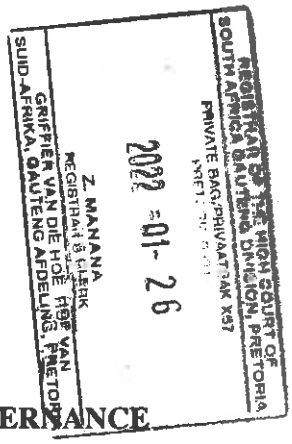
IN THE HIGH COURT OF SOUTH AFRICA
(GAUTENG DIVISION, PRETORIA)

Case no. 4235 **/2022**



In the matter between:

DEMOCRATIC ALLIANCE	Applicant
and	
MINISTER OF BASIC EDUCATION	First Respondent
MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS	Second Respondent
MINISTER OF HEALTH	Third Respondent

NOTICE OF MOTION

PART A

KINDLY TAKE NOTICE that the Applicant intends to apply to the above honourable court at **10:00 on Tuesday 8 February 2022,** or as soon thereafter as counsel may be heard, for an order in the following terms:

1. Condoning the Applicant's non-compliance with the rules, and hearing this matter as one of urgency in terms of rule 6(12).

2. Declaring that, until the determination of Part B of this application, primary and high schools do not need to comply with the provisions described in paragraph

2.1 and 2.2 if it would prevent them from teaching all their registered learners on every regular school day:

2.1. Regulation 66A(4)(a) of the Amended Regulations issued under the section 27(2) of the Disaster Management Act 53 of 2005, by the Second Respondent, originally issued as GN R480 in Government Gazette 43258 of 29 April 2020, and amended by notice R960, in Government Gazette 45253 on 30 September 2021 (**the Regulation**); and

2.2. Subdirections 5A(2), 5A(4)(a), 16(1), 16(2) and 16(3) of the *Directions Regarding the Re-Opening of Schools and Measures to Address, Prevent and Combat the Spread of COVID-19 in the National Department of Basic Education, Provincial Departments of Education, and All Schools in the Republic of South Africa*, issued by the First Respondent, and published under Government Notice No. 42, in Government Gazette No. 44154 of 12 February 2021 (**the Directions**).

3. Declaring that, until the determination of Part B of this application, primary and high schools must continue to enforce social distancing to the best of their ability, without reducing the number of learners they teach, or altering school days or hours.

4. Directing that the First and Second Respondents pay the cost of the application, including the costs of two counsel where employed.

TAKE NOTICE FURTHER that the accompanying affidavit of **JOHN STEENHUISEN** will be used in support thereof.

TAKE NOTICE FURTHER THAT the applicant has appointed the address of its attorneys of record set out below at which it will accept notice and service of all process in these proceedings. The applicant requests service via email.

TAKE NOTICE FURTHER THAT if you intend opposing this application you are required

(a) to notify applicant's attorney in writing on or before **Friday 28 January 2022** and to appoint in such notification an address referred to in rule 6(5)*(b)* at which you will accept notice and service of all documents in these proceedings (the applicant requests that you consent to service via email); and

(b) to serve and file your answering affidavits, if any on or before **Tuesday 1 February 2022**.

If the above timelines are adhered to, the applicant will serve and file its replying affidavit on or before **Thursday 3 February 2022**, the applicant will file its heads of argument on **Friday 4 February 2022** and the respondents their heads of argument on **Monday 7 February 2022**.

KINDLY SET THE MATTER DOWN FOR HEARING ACCORDINGLY

PART B

KINDLY TAKE NOTICE that the Applicant intends to apply to the above honourable court on a date to be determined by the Registrar for an order in the following terms:

1. Declaring that the following provisions are inconsistent with the Constitution and invalid:

    1.1. Regulation 66A(4)(a) of the Amended Regulations issued under the section 27(2) of the Disaster Management Act 53 of 2005, by the Second Respondent, originally issued as GN R480 in Government Gazette 43258 of 29 April 2020, and amended by notice R960, in Government Gazette 45253 on 30 September 2021 (**the Regulation**); and

    1.2. Subdirections 5A(2), 5A(4)(a), 16(1), 16(2) and 16(3) of the *Directions Regarding the Re-Opening of Schools and Measures to Address, Prevent and Combat the Spread of COVID-19 in the National Department of Basic Education, Provincial Departments of Education, and All Schools in the Republic of South Africa*, issued by the First Respondent, and published under Government Notice No. 42, in Government Gazette No. 44154 of 12 February 2021 (**the Directions**).

2. The Regulation and the Directions are reviewed and set aside.

3. Ordering the First and Second Respondents to pay the costs of the application, including the costs of two counsel where employed.

TAKE NOTICE FURTHER that the Applicant relies on the affidavit of **JOHN STEENHUISEN** in support of the application.

TAKE NOTICE FURTHER that the First and Second Respondents are called upon to:

(a) show cause why the decisions to promulgate the Regulation and the Directions should not be reviewed and set aside; and

(b) to dispatch to the Registrar of the Court, within fifteen days after receipt of the notice of motion, the record of the decisions sought to be reviewed and set aside, together with such reasons as they desire to give or make, and to notify the applicants that they have done so.

TAKE NOTICE FURTHER that the applicant may, within ten days after the Registrar has made the record available to it, amend, add to, or vary the terms of its notice of motion and supplement the founding affidavit by deliver of a notice and accompanying affidavit.

TAKE NOTICE FURTHER that if you wish to oppose this application, you are required:

(c) within 15 (fifteen) days of service of the notice of motion on you or any amendment thereof, to notify the applicant's attorneys in writing that you intend to oppose the application and appoint an address at which you will accept notice and service of all documents in these proceedings; and

(d) within 30 (thirty) days after the applicant has amended, added to or varied the terms of their notice of motion and supplemented the founding affidavit, to file your answering affidavits, if any.

TAKE NOTICE FURTHER that the applicants appoint the address of their attorneys, indicated below, where they will accept service of all process in this matter.

Dated at Pretoria on this 25th day of January 2022

MINDE SCHAPIRO AND SMITH INC.

Applicant's attorneys

elzanne@mindes.co.za

c/o: KLAGSBRUN EDELSTEIN BOSMAN DU PLESSIS INC.

220 Lange Street

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Tel: 012 452 8984

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Ref: Ronie Nyama / MD / HM001040

TO **THE REGISTRAR OF THE ABOVE COURT**

NORTH GAUTENG HIGH COURT

PRETORIA

AND TO **MINISTER OF BASIC EDUCATION**
First Respondent
Sol Plaatjie House
222 Struben Street, Room TF1062
PRETORIA
Per email: mabua.s@dbe.gov.za; sehlabelo.p@dbe.gov.za

Care of: State Attorney Pretoria: ichowe@justice.gov.za; kisamchowe@gmail.com

AND TO **MINISTER OF COOPERATIVE GOVERNANCE AND TRADITIONAL AFFAIRS**
Second Respondent
87 Hamilton Street, Arcadia, PRETORIA

Per email: MandisaMB@cogta.gov.za; PamelaS@cogta.gov.za; MathoM@cogta.gov.za

Care of: State Attorney Pretoria: ichowe@justice.gov.za; kisamchowe@gmail.com

AND TO **MINISTER OF HEALTH**

Third Respondent

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JR, PRETORIA

Per email: Lwazimanzi@gmail.com

Care of: State Attorney Pretoria: ichowe@justice.gov.za; kisamchowe@gmail.com

IN THE HIGH COURT OF SOUTH AFRICA
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MINISTER OF HEALTH	Third Respondent

FOUNDING AFFIDAVIT

I the undersigned

JOHN HENRY STEENHUISEN

do hereby make oath and say:

1. I am the Federal Leader of the Democratic Alliance (DA). I am duly authorised to bring this application on behalf of the Applicant.

2. The facts described in this affidavit fall within my personal knowledge, unless I state otherwise, or the context makes it clear that they do not. I confirm that those facts are to the best of my knowledge, true and correct.

3. Some of the averments I make herein deal with matters of law. To the extent that I do so, I rely on the legal advice obtained from the DA's legal representatives during

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consultation and in the preparation of this affidavit. The DA accepts the correctness of that legal advice.

4. The Applicant brings this application in its own interest, in the interest of its members, and in the interest of all primary school learners in South Africa.

5. The Respondents are all Ministers in the National Government. They are served care of the State Attorney in Pretoria. The Applicant has not cited the Members of the Executive Council responsible for education in the nine provinces because no relief is sought against them. However, it will provide a copy to all the MECs and will not oppose any application by the MECs to intervene in this application, provided it does not affect the timetable for the hearing of this matter.

I INTRODUCTION

6. The question in this application is whether all children should receive the basic education guaranteed in the Constitution. At present, children at richer primary schools can go to school every day. Children attending poorer primary schools, can only go to school every second day, or second week. This is a clear violation and infringement of children's constitutional rights. It will stunt their learning, perhaps permanently.

7. The reason for this violation of children's rights is supposedly to stop the spread of Covid-19. Stopping children going to school will not achieve that goal. Allowing children to return to school will **not** significantly, or at all, increase the risk of spreading Covid-19. There are other ways to prevent the spread of Covid-19 without stopping

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children from learning. The ongoing and irreversible violation of children's rights is disproportionate to achieve any possible limitation of the spread of Covid-19.

8. This is an application in two parts:

8.1. **Part A** is an application for an urgent interdict to allow children to return to school full time, pending Part B.

8.2. **Part B** is the review of various regulations and directions that make it impossible for primary schools to fulfil the right to a basic education.

9. The regulations the Applicant seeks to review and set aside in Part B are:

9.1. Regulation 66A(4)(a) of the Amended Regulations issued under the Disaster Management Act, by the Second Respondent (**COGTA Minister**), as notice R960, in Government Gazette 45253 on 30 September 2021 (**the Regulation**). The Regulation reads: "*The social distancing measures in primary schools is reduced to one metre.*" The Regulation does not reduce the social distancing measurement in high schools. High school learners are required to maintain a distance of one and a half meters by regulation 69(1)(c).

9.2. Subdirections 5A(2), 5A(4)(a), 16(2) and 16(3) of the Directions issued by the First Respondent (**the Basic Education Minister**) regarding the re-opening of schools and measures to address, prevent and combat the spread of COVID-19 in the National Department of Basic Education, Provincial Departments of Education, and all schools in the Republic of South Africa, as published under Government Notice No. 42, in Government Gazette No. 44154 of 12 February 2021 (**the Directions**).

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9.2.1. On 1 August 2021, the Directions were amended to include regulation 5A(2), which provides that "*Primary schools (for learners in Grades R to 7) must return to the traditional and daily attendance timetabling model from 2 August 2021: Provided that [. . .] the minimum health and safety measures as contemplated in these directions, the DBE Standard Operating Procedures and the Regulations, are adhered to*". Subdirection 5A(4)(a) then reads: "*The social distancing measure in primary schools is reduced to one metre*". Again, the Directions do not reduce social distancing in high schools to one meter.

9.2.2. Subdirection 16(1) provides that *'[e]very school, hostel or office must comply with the social distancing requirements as prescribed in the Regulations, DBE Standard Operating Procedures and DBE Guidelines"*.

9.2.3. Subdirection 16(2) envisages rotational schooling for those schools that cannot comply with social distancing. It reads:

> (2) Subject to subdirection (1), schools may consider and apply any of [the] following available timetable models suitable for their context and functionality:
> *(a)* Daily and weekly rotation;
> *(b)* bi-weekly rotation;
> *(c)* platooning or shifts;
> *(d)* traditional and daily attendance; or
> *(e)* a hybrid of the latter.

9.2.4. Subdirection 16(3) makes clear that this second-class schooling is only for schools with lots of learners or small classrooms. It reads: "*Schools with large enough facilities to comply with health, safety, and social distancing requirements do not have to change their traditional and daily timetable models, and may continue to operate in accordance with those timetable models*". But schools without large enough facilities – most schools, and particularly schools serving poorer communities – must adopt rotational timetables.

10. Together, the Regulation and the Directions mean:

10.1. A *primary* school cannot return to traditional attendance if that school cannot guarantee that learners are *one* meter apart.

10.2. A *high* school cannot return to traditional attendance if that school cannot guarantee that learners are *one and a half* meters apart.

11. I refer to the effect of the Regulation and Directions as the **social distancing rule.**

12. The majority of primary schools cannot allow all learners to attend while complying with the one-metre rule. The same is true of high schools to a greater extent. High schools typically have more students *and* are required to keep those students further apart. Both types of schools are therefore forced to move to a rotational timetable where children only attend school on alternate days or weeks.

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13. The Directions and Regulation are plainly unconstitutional. Both unjustifiably limit the rights to basic education, a child's best interests, and equality. They deny children half the time they would otherwise have at school.

14. Expert evidence shows this has real and long-lasting effects on children's education and development. The government's own Ministerial Advisory Committee (**MAC**) recommended in July 2021 that any limited benefit of reducing schooling is unjustified.

15. The Regulation and Directions, against all evidence, assume that the "social distancing rule" reduces the risk of Covid-19 enough to justify depriving (most) learners of basic education. That is not the case.

16. Primary school learners present a low risk of contracting or transmitting Covid-19. The same is true of high school learners, who in any event qualify for vaccines against Covid-19. The risk is far too low to justify the harms that come with requiring primary and high schools to adopt rotational timetables, or close, if those schools cannot adhere to the social distancing rule. And the social-distancing rule does little if anything to reduce the spread of Covid-19 in a school setting.

17. On top of these issues, the social distancing rule is plainly irrational. Why should primary school learners be kept one meter apart, while high school learners are kept one and a half meters apart? There is simply no reason.

18. In Part A, this Court does not need to decide that the Directions are unconstitutional.

19. It needs to decide only whether, while the DA pursues Part B of its challenge, school learners should return to school. The issue in Part A is straightforward. If the DA is correct that the social distancing rules are unconstitutional, and meanwhile learners have *not* been going to school, is that worse than if the DA is ultimately wrong about the social-distancing rules, and meanwhile learners *have* been going to school?

20. The DA submits that the answer is clear.

21. On an application of the settled principles for interim relief, all school learners should return to school on traditional timetables and attendance while the DA challenges the constitutional validity of the Regulation and Directions.

22. The probabilities are such that learners face irreparable harm to various constitutional rights if schools persist with rotational timetables while the DA pursues its challenge.

23. On the other hand, all available evidence suggests that if school learners attend school while the DA's challenge proceeds, the risk of harm relating to Covid-19 is minimal.

24. In Part B, once it is able to consider all the evidence, this Court will be able to consider whether the Respondents can justify the multiple violations of constitutional rights. But while that process plays out, children must go back to school.

25. In what follows, I set out:

25.1. **Part II** deals with the relevant factual background.

25.2. **Part III** justifies the relief sought in Part A.

25.3. **Part IV** addresses the relief in Part B

25.4. **Part V** deals with urgency

II THE BACKGROUND

26. On 11 March 2020, the World Health Organisation publicly characterised Covid-19 as a pandemic.

27. On 15 March 2020, the President announced that a national state of disaster would be declared, as part of the state's measures to combat the Covid-19 pandemic. The national state of disaster was formally declared by the Minister of Cooperative Governance and Traditional Affairs (**COGTA Minister**) on the same day. The DA cites the COGTA Minister as the second respondent in this matter.

28. The COGTA Minister also promulgated various regulations to contain the spread of Covid-19. The regulations make provision for an alert level system to manage the response to Covid-19. The applicable alert level is determined by the COGTA Minister in consultation with the Minister responsible for health and Cabinet. The DA has cited the Minister of Health as Third Respondent for any interest he may have in this matter. The determination of the alert level considers the prevalence and incidence of the virus, the availability of resources to treat those with severe illness and other factors relevant to the containment of the virus.

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29. From 26 March 2020, South Africa has been under different alert levels. The higher the alert level, the more restrictions there are to curb the spread of Covid-19. The alert levels generally tracked the "waves" of Covid-19 infections. As the number of infections and hospital admissions rose, the state increased the alert levels. As the waves troughed, the alert levels went down. As of 30 September 2021, South Africa is on alert level one.

30. On 30 December 2020, Cabinet announced that South Africa is under an adjusted level one alert level. I attach the cabinet announcement as **JS1**. Under the current alert level, life has almost returned to normal. There is no curfew. Businesses can operate freely. Alcohol, tobacco and warm food can be sold without any additional restrictions. There is no limit on international or internal travel.

31. The only major remaining restrictions are:

    31.1. Up to 1000 persons can be in an indoor venue, at one and a half meters apart.

    31.2. Up to 2000 persons can gather in an outdoor venue, at one and a half meters apart.

    31.3. Masks are mandatory in public spaces.

32. Cabinet announced, moreover, that South Africa has passed the peak of the fourth wave. The fourth wave refers to the fourth surge in Covid-19 infections in South Africa since March 2020. The fourth wave began towards the end of November 2021. The fourth wave was driven by the Omicron variant.

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33. Cabinet's announcement was confirmed by the COGTA Minister on 30 December 2021. The Minister promulgated further regulations in terms of the Disaster Management Act in Notice 1659 published in *GG* 45715. Those regulations of 30 December 2021 confirm that persons must maintain a distance of one and a half meters when at gatherings.

34. Throughout the Covid-19 pandemic, schools have opened and closed.

35. Initially, under Alert Level 5, schools were completely closed for contact learning. As the COGTA Minister loosened Covid-19 restrictions, schools re-opened partially. I attach a study and graph documenting how schools were opened and closed throughout 2020 as **JS2**. As is clear from the graph:

35.1. On 18 March 2020 schools closed completely. They were closed until 8 June 2020—a period of almost three months.

35.2. On 8 June to 27 July 2020, schools were open partially. During this period, schools first implemented rotational timetables.

35.3. From 27 July to 24 August 2020, schools were closed yet again for contact learning.

35.4. From 24 August 2020, schools were re-opened, with rotational timetables.

36. These lost school days have already significantly impacted on learner's access to basic education.

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37. When the Cabinet announced that South Africa is now in an adjusted level one, which included no curfew for the first time in almost two years, learners and parents were hopeful.

38. Certainly, the DA hoped that the Minister of Basic Education would announce that schools will return to normal attendance for the 2022 academic year. But on 11 January 2022, the Minister of Basic Education announced (**JS3**):

> "With regards to schooling, the situation will remain the same, *especially rotational time-tabling*, where it was applicable when we concluded schooling in 2021. The fact of the matter, is that COVID-19 is very much still with us, and we need to continue to work together to fight it. We are exploring possibilities to return schooling to normal, but we need to do so responsibly; and to this end, we rely entirely on the advice of public health experts, through the Ministerial Advisory Committee, the National Coronavirus Command Council, and indeed Cabinet. At the right time, we will come back to report on progress being made." (emphasis added).

39. Thus, the DA, along with the rest of South Africa, learned on 11 January 2022 that the social distancing rule – and therefore rotational schooling, **at least for poorer schools** – would continue to apply in schools.

40. This was despite the dramatic drop in Covid-19 cases, the end of the fourth wave, and, as I explain below, a growing body of evidence suggesting that schools should return to traditional timetables.

III PART A: INTERIM RELIEF

41. Part A of this application seeks an interim order suspending rotational schooling pending the determination of Part B. In the interim, instead of a social distancing

mandate coupled with rotational schooling, the application seeks a regime where schools will ensure social distancing as much as possible, without limiting the time that children attend school. This is not the DA's proposal – it is the proposal of the Ministerial Advisory Committee which the Respondents have chosen to ignore.

42. The DA is advised that there are four requirements for an interim interdict:

42.1. *First*: there must be a **prima facie right**. The right need not be shown by a balance of probabilities. The proper manner of approach is to take the facts as set out by the applicant together with any facts set out by the respondent that applicant cannot dispute. With those facts in mind, the Court must consider whether, having regard to the inherent probabilities, the applicant could obtain final relief. The facts set up in contradiction by respondent should then be considered, and if *serious doubt* is thrown upon the applicant's case, then they could not succeed.

42.2. *Second:* there is a well-grounded **apprehension of irreparable harm** to the applicant if the interim relief is not granted, and it ultimately succeeds in establishing the right.

42.3. *Third:* the **balance of convenience** favours the granting of the interim relief. The stronger the case which the applicant makes out in the pending review, the less balance of convenience in favour of the applicant there needs to be, for interim relief to be granted.

42.4. *Fourth*: the applicant has **no other satisfactory remedy**.

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43. In addition to these general requirements, where an interim interdict is sought against a functionary tasked with exercising statutory powers and duties, a court will consider whether the granting of the interim interdict impedes the exercise of statutory powers and the fulfilment of statutory and constitutional duties. A court must consider the relevant statutory or constitutional duties when weighing the balance of convenience. An important consideration, when deciding whether it is a clear case warranting interim relief, is whether the harm apprehended by the applicant amounts to a breach of one or more fundamental rights protected by the Bill of Rights.

44. I apply each of these requirements to the facts of this case.

A PRIMA FACIE RIGHT

45. The DA, on behalf of primary school learners, asserts three constitutional rights.

45.1. First, the right to basic education. Section 29(1)(a) provides everyone with the right to basic education. The right, is unqualified and immediately realisable. It is not subject to progressive realisation or reasonable measures. Laws that reduce existing access to basic education require particularly strong justification.

45.2. Second, the right of children in section 28(1)(c) and 28(2) to basic nutrition and for children's best interests to be paramount in all matters concerning them.

45.3. Third, the right to equality in section 9. Section 9(3) prohibits unfair discrimination on various grounds, including socio-economic status, disability,

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gender, and sex. I am advised that poverty is a ground of discrimination analogous to those listed in section 9(3).

46. These are the rights that the Applicant relies on in Part A. They are also the primary grounds on which they will assert that the Regulation and the Directions are invalid in Part B. In addition, the Applicant seeks the Rule 53 record for the decision to adopt both the Regulation and the Direction. In light of that record, the Applicant may supplement its grounds of review as it is entitled to under Rule 53. The Applicant also reserves the right to provide additional expert evidence when it supplements its founding papers.

47. The approach to whether a law of general application (like the Directions) constitutionally limits a right is settled. First, an applicant must establish that the impugned law limits a constitutional right. Second, if so, the state must justify the limitation of the right in terms of s 36(1) of the Constitution. If the law unjustifiably limits the right, then that law is unconstitutional and invalid.

48. Below, I set out the relevant expert evidence. I then demonstrate how, prima facie, each right is limited by the Regulation and the Directions. Finally, I explain why the Respondents will not be able to justify these limitations.

The Expert Evidence

49. The expert evidence establishes the very serious negative effects of denying children access to school. Unsurprisingly, preventing children from attending school reduces their ability to learn in both the short and long term. It also has severe negative mental health effects on children.

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50. The DA relies on five documents setting out the opinions of experts. The Applicant has not procured any expert affidavits because the harm to children is so obvious, and so well-accepted, even by the MAC. I invite the Respondents to put up their own experts that contradict the below evidence if they believe it is false.

51. First, the Ardington Study. Professor Ardington published an article titled "COVID-19 learning losses: Early grade reading in South Africa" in the *International Journal of Educational Development* (**JS4**). The study demonstrates that learners attending primary schools under the rotational model have had their access to basic education *severely* stunted.

52. Professor Ardington, who is a profcssor in thc Southcrn Africa Labour and Development Research Unit at the University of Cape Town, co-authored the study with two colleagues:

52.1. Gabrielle Wills is an education economist and researcher with Research on Socio-Economic Policy, in the Department of Economics at Stellenbosch University, South Africa. She graduated in 2016 with her PhD in Economics, with a dissertation focused on school leadership and teacher union effects on learning outcomes.

52.2. Janeli Kotze, who is the Deputy Director: Research Coordination, Monitoring and Evaluation in the Department of Basic Education.

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53. The study estimates short-term learning losses in reading for grade 2 and 4 students from under-resourced school contexts. The study's results highlight significant short-term losses in learning in 2020 due to COVID-19 disruptions of between 57% and 81% of a normal school year. The authors urge: "South Africa simply has no option but to engage in significant remediation efforts in the coming years and to avoid future school disruptions as much as possible".

54. The study makes the following key points:

54.1. Learning losses are not only the "opportunity cost" of lost learning which is the learning students would have gained over a typical year of schooling if schools were not disrupted, but potentially also include "deterioration" of knowledge that is forgotten over time. Therefore, with prolonged closure, learning losses can be expected to exceed what is suggested by actual days of school lost.

54.2. Generally, the long-term effects of school closures include the affected children having lower educational attainment, lower earnings, higher unemployment and being more likely to be in lower skilled occupations in adulthood. The study makes this point considering long-term studies on previous events that caused schools to close, including World War II, strikes, and earthquakes.

54.3. In 2020, based on a sample of schools, learners whose schools employed a rotational model had *half* the number of school days they ordinarily had. This is the obvious implication of the rotational model. The rotational model involves a learner only going in every alternate day, to ensure that classes are not too crowded.

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54.4. Accounting for fewer school days than officially scheduled and rotational schedules, grade 2 students had 80 school days, which is only 40 % of the 199 school days in the 2019 school calendar. Assuming a maximum number of scheduled days and rotational schedules, then at best grade 4 students could have attended school for 44% of a normal school year.

54.5. Student in the school samples lost about 56%–60% of the number of contact teaching days they normally would have received in a pre-pandemic school year due to a combination of school closures and rotational timetabling schedules.

54.6. Data from the sample schools suggests that a significant portion of students never returned to school in 2020 after the initial school closure in March 2020. Between the end of 2019 and the beginning of 2021, 15% of sampled students left the school.

54.7. The authors model estimated learning losses based on various counter-factuals and variables. On their model, for grade 2 learners, the impact of the 2020 schools' closures, including rotational learning, was a loss of 70 % of a year of learning. For grade 4 learners, estimated learning losses are between 62%–81% of a year of learning.

54.8. Learning losses tend to exacerbate existing inequalities as they disproportionately affect the most disadvantaged students. The gap between low-income and middle- to high-income children that accumulates over the summer vacations is well documented.

54.9. Female students in the study's sample were substantially more impacted by the pandemic. In grade 2, girls had learning losses of around nine words per minute

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in contrast to losses of six words per minute for boys. Learning losses in grade 4 were 20% and 27% higher for girls than boys in home language and English reading respectively.

55. Accordingly, school closures coupled with rotational timetables resulted in significant learning losses to primary school learners.

56. The second document is the MAC Report (**JS5**). The MAC report is compiled be a group of expert epidemiologists and analysts. These people were selected by Cabinet for their expertise to advise on Covid-19 issues. The report is signed by the co-chairpersons of the MAC – Prof Koleka Mlisana and Prof Marian Jacobs.

57. The MAC Report notes that recent South African evidence shows that learning losses at the primary school level in 2020 amounted to 50-75% of a year of learning lost relative to the 2019 cohort. The MAC Report cites a study by Spaull et al, which examines among other things Covid-19's impact on schooling (**JS6**). The study finds:

57.1. The majority of parents and caregivers in South Africa (58%) agreed that children should be able to attend school every day, rather than rotational timetables.

57.2. Confirming the Ardington study, in 2020, South African primary school children in no-fee schools have learnt 50-75% less than what they normally learn. More than 70% of South African schools are no-fee.

58. The MAC report proceeds to note:

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58.1. Studies have shown that reducing the number of days of schooling has an impact (reduction) on cognitive functioning, particularly crystallized intelligence (e.g. comprehension). Additional schooling time has the effect of raising performance scores, and the longer the time spent in school, the better the performance.

58.2. Learners need continual cognitive stimulation. School closures and disruptions contribute to learning losses because of limited learning opportunities and memory decay.

58.3. The attendance of learners in-person at schools is important for their social and psychological development, but this should be done with full attention to ensuring the safety of children, educators, and other school staff members.

59. The MAC report explains how rotational schooling prejudices those learners who are already disadvantaged the most:

> "The global literature highlights: (i) learning losses because of school closures, (ii) how pre-existing education disparities will widen during the pandemic (iii) in fragile educational systems, gains made over time will be wiped out and (iv) the effects beyond education. In South Africa, there is an achievement gap between learners based on socio-economic status. For the socio-economically disadvantaged attending schools is the only modality to access education opportunities as online options are not available and the longer they are out of school the greater the learning losses."

60. The MAC also highlights how rotational schooling threatens children's access to food:

> "Less than half of children (43%) received a free school meals in February and March 2021, showing receipt is still well below pre-pandemic levels (65%), and possibly even

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November/December 2020 levels (49%). *The leading explanation for low school meal receipt is rotational timetables where only half of children attend on any one day in most no-fee schools.*

Recent data from a nationally representative household survey in South Africa (NIDSCRAM Waves 1-4) shows that during lockdown in May/June 2020 while schools were closed, 16% of children experienced hunger 'in the past 7 days', double the rate in 2018. This declined to 12% in July/August 2020 but since the removal of the top-ups to the Child Support Grant at the end of October 2020, child hunger increased to 16% in November/December 2020 and moderated slightly to 14% in February/March 2021. When schools were completely open (i.e. pre-pandemic and not rotational timetables) *approximately 9.6-million children* (80%) received a free meal at school every weekday." (emphasis added).

61. It recommends that all primary schools should be full open: "*Ideally, all children should be at least one metre apart within classrooms, but where this is not possible, full capacity schooling should still be commenced whilst maintaining the maximum feasible physical distance.*"

62. The third document is a statement by the South African Paediatric Association (**SAPA**). SAPA is the professional body representing paediatricians in South Africa, including those working in private and public hospitals. On 1 February 2021, SAPA released a statement (**JS7**) calling for schools to return to traditional timetables. Once again, this statement is compiled by medical experts specialising in child healthcare.

63. With respect to the impact of school closures and rotational timetables, SAPA stated:

63.1. Only about 20% of school children benefit from online schooling according to the Department of Basic Education.

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63.2. School closures result in poorer parent mental health, competing demands and increased stress, job losses and reduced income, impacts on perinatal and mental health.

63.3. Children who do not attend school are at risk of poorer mental health and increasing behavioural and developmental concerns, lack of access to play and social opportunities, increased isolation, academic impacts, child abuse and neglect.

63.4. In all of these aspects, disadvantaged families seem to be disproportionately affected.

64. The fourth document is the van der Berg and Spaull Report. These experts published a report titled "Counting the Cost: COVID-19 school closures in South Africa & its impact on children" on 15 June 2020. The study makes the following findings:

64.1. Widespread overcrowding in schools "*makes practicing social distancing in most classrooms in the country practically impossible.*"

64.2. "*Other preventative measures like hand hygiene and mask-wearing for older children should be implemented but social distancing within the classroom should not be enforced.*"

64.3. School closures severely impact on children's mental health.

64.4. "*International research on the cumulative effects of learning losses and subsequent income losses indicate that many of the losses in both learning and income are long term in nature and can be measured five years after the event*"

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65. It concludes: "*keeping children out of school is not in the best interests of the child. ... The profound costs borne by small children and families as a result of the ongoing nationwide lockdown and school closures will be felt for at least the next 10 years.*"

66. The fifth expert document is a statement by the United Nations Educational, Scientific and Cultural Organisation (**UNESCO**). It makes the following statements:

66.1. "*when schools close, children and youth are deprived opportunities for growth and development. The disadvantages are disproportionate for under-privileged learners who tend to have fewer educational opportunities beyond school.*"

66.2. "*Many children and youth rely on free or discounted meals provided at schools for food and healthy nutrition. When schools close, nutrition is compromised.*"

66.3. "*When schools shut down, early marriages increase, more children are recruited into militias, sexual exploitation of girls and young women rises, teenage pregnancies become more common, and child labour grows.*"

66.4. "*Schools are hubs of social activity and human interaction. When schools close, many children and youth miss out of on social contact that is essential to learning and development.*"

67. These five documents, compiled by experts, all say the obvious. Rotational timetables mean that learners go to school on alternate days, at best. That equates to far less, at times less than half the amount of, learning a learner would otherwise receive. That also has a variety of other knock-on effects for the learners.

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The right to Basic Education

68. Under the social-distancing rule, learners have access to less education than under ordinary timetables and attendance. In most instances, they attend school only half the time. Access to less education limits learners' right to basic education.

69. This is the inevitable and intended result of the social distancing rule. It is inevitable that schools that do not have classrooms that are large enough for learners to sit one or one and a half metres apart will not be able to allow all learners to attend school every day. The only way to comply with the rule is to limit the number of learners that can attend school each day. Paragraph 16(3) of the Direction envisages exactly this. So too does the Basic Education Minister's statement of 11 January 2022. The purpose of the social-distancing rule is precisely to stop children going to school, if those schools are too small to comply with the rule.

70. The Applicant does not know exactly how many schools are forced to violate their learner's right to a basic education by imposing rotational schooling. I invite the Respondents to provide that information.

71. Preventing children from attending school on 50% of the ordinary prescribed days is a self-evident limitation of the right in s 29(1)(a). It does not require any expert evidence. But the expert evidence shows that the natural intuition is correct. Rotational schooling has serious and long-lasting effects for children's right to a basic education.

72. The Regulation and Direction is the cause of this reduction in learning. If the respondents abandoned the social-distancing rule, then schools could be open to all students every day. But with the social-distancing rule in place, students receive less education. Accordingly, regulation 5A(2) and (4)(a) limits learners' right to basic education.

Children's Rights

73. In South Africa, schools not only provide education. Schools provide children with access to nutrition, through meal programs, which those children would otherwise not have. So, when one closes a school, or forces a school to operate at half capacity, the ripple effect is that children are denied access to basic nutrition.

74. The point cannot be underscored enough. This application is not about selling alcohol, claiming insurance, watching live sport, or attending night clubs—other Covid-19 matters have concerned those issues. This application concerns the *9.6 million children* who rely on their school to provide them with a meal.

75. I am aware that this Court gave an order on 17 July 2020 requiring the Basic Education Minister and all education MECs to provide food to learners whether or not their schools were open for learning (*Equal Education and Others v Minister of Basic Education and Others* [2020] ZAGPPHC 306; [2020] 4 All SA 102 (GP); 2021 (1) SA 198 (GP)). However, the fact that the MAC is still concerned about the problem strongly suggests that it still exists. And it is natural that it would. Even if food is available, if children are not required to attend, they may not be able to access that food.

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76. I described above how, according to the MAC report and SAPA, a child's mental wellbeing is undermined if that child cannot attend school. The MAC report urges that in addition to education, schools provide nutrition and food security, and physical and psychological safety, "*which should be maintained even during the time of a pandemic*". Both documents cite a variety of studies to support this claim. The point is an obvious one. It is overwhelmingly in a child's interests to go to school. There are rare exceptions. But for the average child, going to school is a good thing.

77. Once one accepts that incontrovertible premise, the right in section 28(2) of the Constitution kicks in. Section 28(2) provides that a child's interests are paramount when that child is concerned. I am advised that the right does not imply that the child's right trumps all other interests necessarily. But the right implies that the child's best interests, certainly the interest a child has in attending school, cannot be easily trumped. At the very least, clear and substantial evidence is necessary to warrant a law that goes against a child's best interests.

78. The unfortunate upshot of regulation 5A(2) and (4)(a) is that it runs roughshod over a child's interest in going to school. Of course, if a child was exposed to a serious health risk by going to school, then the restriction on attendance may be justified. But I will consider below, when discussing section 36, how there is no such evidence in this case.

Right to Equality

79. Section 9(3) of the Constitution prohibits unfair discrimination. I am advised that the prohibition extends to indirect discrimination. Indirect discrimination is when

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members of a group sharing a protected characteristic are disproportionally impacted by a seemingly neutral rule.

80. The Regulation and the Directions are seemingly neutral. All schools must maintain social distancing, otherwise they must implement a rotational timetable. But the reality is that the rule disproportionally impacts learners based on their socio-economic status.

81. Rich schools with low teacher-to-learner ratios and large classrooms are able to comply with the social distancing rule while learners attend every day. Poorer schools with high teacher-to-learner ratios and smaller classrooms cannot. The result is that children of rich parents are getting a full basic education, while children of poor parents get half an education. Poorer learners are also less likely to able to ameliorate the loss of physical schooling – they are less likely to have access to the internet, to tutors, or to other learning opportunities than richer learners. That is discriminatory on the basis of poverty or socio-economic status which is an analogous ground of discrimination under s 9(3) of the Constitution and the Equality Act.

82. The Ardington Report puts the point aptly: "*Those who were benefiting more from being at school pre-pandemic are those that lose out the most*".

83. Female learners are also disproportionately impacted by rotational schooling. The Ardington Report concludes that female learners suffer more lost learning than male learners. That is discrimination on the basis of sex and gender.

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84. Finally, learners with learning disabilities will suffer more than learners without learning disabilities. They depend more heavily on access to teachers and physical education resources than their able counterparts. That is discrimination on the basis of disability.

85. I am advised that for a law to fall foul of section 9(3) and the Equality Act, discrimination must also be unfair. It is assumed that discrimination is unfair, and it is for the Respondents to show that the discrimination is fair. Since the fairness analysis and the section 36 analysis largely overlap, I consider them together in the next part.

No Justification

86. I emphasise that the onus rests squarely on the state to justify the limitation of constitutional rights. The Applicant is not, therefore, required to put up any expert evidence until the Respondents have explained the bases on which they intend to justify limiting children's constitutional rights. If the Respondents do so, the Applicant will deal with that evidence in reply. However, it is easy to anticipate the basis on which the Respondents are likely to seek to justify the above limitations.

87. There are three potential purposes for the social distancing rule in the Directions and the Regulation:

87.1. *Preventing contraction*: the rationale behind the social distancing rule could be that if school learners are less than one or one and a half metres apart at schools, then they face the risk of contracting Covid-19.

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87.2. *Preventing transmission*: an alternative purpose is that school learners, while not at risk of contracting Covid-19, create a risk of transmitting Covid-19 to vulnerable persons, like teachers and parents. Ensuring a social distance, the rationale goes, decreases the risk of transmission.

87.3. *Preventing hospitalisation*: a further alternative purpose is that while contraction and transmission cannot exactly be prevented by the social-distancing rule, the rule reduces the risk of serious cases of Covid-19. Serious cases of Covid-19, not only increase the risk of death, but also place immense pressure on the public health system.

88. Each of these purposes is no doubt legitimate. But there are three issues with the purposes.

The issue of connection

89. The first issue is that of *connection*. The social distancing rule will not achieve these purposes.

89.1. *Preventing contraction*: there is now wide scientific consensus that school learners, who are aged under 15, have a very low chance of contracting Covid-19. The MAC report accepts that children, including those above 15, account for a relatively small proportion of Covid-19 cases. The SAPA statement referred to above says the same. Children only account for 1-3% of reported cases. Children and young people have lower susceptibility to Covid-19, with 56% lower odds of acquiring infection following contact with a confirmed case.

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In any event, children over the age of 12 can now be vaccinated, further reducing the odds of contraction.

89.2. *Preventing transmission*: there is no evidence to suggest that primary school learners attending schools increase the risk of transmission. On the contrary, children are unlikely to spread Covid-19. Schools are not "super-spreader" events. The MAC report notes:

89.2.1. Most educators have been vaccinated, reducing their risk of Covid-19 transmission and disease acquisition.

89.2.2. A recent (June 2021) epidemiological analysis of South African households indicates that children are both less likely to catch and transmit COVID-19 as compared to adults. Again, now that children over 12 can be vaccinated, the odds of transmission fall even further.

89.2.1. Emerging evidence from a systematic review of global school transmission studies suggests very low infection attack rates.

89.2.2. There are no consistent changes in community incidence trends associated with the timing of opening or closing of schools in South Africa.

89.3. The SAPA statement provides that younger children are less likely to transmit the virus to each other and staff compared to adolescents and adults. It says that a systematic review of household cluster studies suggests that children were the index (transmitting) case in only 3 of 31 (10%) individual cluster studies. SAPA also makes the point that teachers are more likely to contract the virus from

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other adults, e.g. colleagues in tearooms, at home or in the community, than from their learners.

89.4. *Preventing hospitalisation*: if the risk of contraction and transmission is low, which it is, then the risk of hospitalisation is even lower. Most Covid-19 cases, fortunately, do not result in hospitalisation or death. When it comes to children in particular, the MAC report notes how analysis of teacher payroll data showed no relationship between excess teacher mortality and the opening and closing dates of schools between March 2020 and February 2021. SAPA's statement provides:

89.4.1. In general, children have much less severe disease, accounting for less than 1% of severe cases and deaths.

89.4.2. Children are more likely to have an asymptomatic infection than adults.

89.4.3. When children and adolescents are infected, they are more likely to only have mild disease.

90. A recent statement by six experts in infectious diseases and vaccinology confirms this (**JS8**). It explains states that "*[c]hildren experience only a very small chance of harm from infection with SARS-CoV-2, except for those under one year of age or in the presence of underlying medical conditions. Children suffer illnesses from influenza and a range of other viruses and infections too, and we sent them to school prior to this pandemic, understanding the massive benefits to child health and development.*" They conclude as follows:

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> With the very high levels of asymptomatic transmission and community immunity present, there is no reason to continue restricting class sizes or children playing. Enforcing physical distancing measures in classrooms, such as requiring students to be 1.5 metres apart from each other, is impractical and not likely to substantially reduce transmission in the face of these new variants.

91. The point is obvious – the social distancing rule is ineffective because it is not practically possible to keep school children more than one metre apart all the time. They will inevitably come into close contact with each and teachers, which defeats the purpose of the rule. If the rule cannot be implemented, it cannot justify limiting constitutional rights.

92. Accordingly, on all available and current evidence, there is no link between the Regulation and Directions and the three purposes. The social distancing rule will not meaningfully stop the spread of Covid-19. It will severely harm children.

93. Current data and Covid-19 statistics are clear. At the start of the 2022 academic year, transmissions and case numbers are down. So too are deaths and hospital admissions. Even if, assuming the worst, returning to a tradition timetable results in a slight increase of cases and hospitalisations, the healthcare system will not collapse. On the contrary, hospital admissions are low enough at the moment to handle, comfortably, a slight rise in admissions. I attach a graph indicating hospital admissions (**JS9**) and deaths (**JS10**).

Alternative means

94. The second issue with the three purposes is *alternative means*. There is a wide range of options open to the state to achieve the three purposes without requiring primary school learners to lose out on education.

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95. Some of these alternative means are listed in the MAC report:

> "Adherence to prevention interventions can make a significant difference to risk of acquiring SARS-CoV-2.9. The prevention interventions include:
>
> 1) engineering controls – (what we can do to the environment to reduce transmission), such as ensuring ventilation and maintaining distance between students in enclosed spaces;
> 2) infection prevention and control - (what we can arrange to reduce transmission), such as screening, hand hygiene, cough etiquette, regular environmental cleaning and personal protective equipment, such as non-medical (cloth) face masks, and eye protection (visors) should prevent the spread of the virus from the individual with SARS-CoV-2 to other learners or staff in schools; and
> 3) Administrative controls – (what we can do to encourage prevention interventions), such as having policies on screening, reporting and contact tracing."

96. The SAPA statement says the exact same, urging that the above alternative means be used instead of the social distancing rule.

97. In addition to these measures, the state could adopt various other measures to achieve the above three purposes.

97.1. The state could require all teachers, or everyone, to get vaccinated.

97.2. The state could make vaccines available to all children over the age of 5. This is already the case in other countries.

97.3. The state could continue to use other measures – mask mandates and hygiene requirements – in schools to limit the spread of Covid-19.

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97.4. The state could further restrict other activities that are more likely to spread Covid-19, but which do not restrict constitution rights as severely (like bars, spectator sports, or restaurants).

98. There are various measures the state could adopt to keep Covid-19 under control—so why should primary school learners shoulder the burden?

Proportionality

99. The final issue is *proportionality*. Covid-19 is a deadly virus, which has had devastating effects globally. The DA does not question the imperative to protect people from Covid-19. The issue in this matter is that education is at stake. Basic education is not optional. It is a constitutional right that must be fully and immediately provided by the state.

100. Expert evidence suggests that an entire generation of school learners will never recover from the learning which they lost. South Africa may never be able to offer learners remedial measures to counteract the time and learning they lost during this pandemic. The learners who will suffer are those who are already more disadvantaged and most in need of the benefits of a basic education. The effects of this in future years could be immense and untold.

101. It is no wonder, given these three issues, that the MAC report—the state's own experts—recommended that schools re-open fully. The MAC report acknowledges that schools should still implement various measures to reduce the risk of transmission. But it recommends: "*Ideally, all children should be at least one metre apart within classrooms, but where this is not possible, full capacity schooling should still be*

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commenced whilst maintaining the maximum feasible physical distance". The SAPA statement makes substantively the same recommendation.

102. All the above, I am advised, demonstrates that the DA has a prima facie—if not clear—case to challenge the constitutionality of the Directions.

IRREPARABLE HARM

103. Once one accepts that the Directions limit the above three constitutional rights, then one must accept that the harm shouldered by primary school learners is irreparable:

103.1. There is no going back on lost teaching time. It would take immense resources and effort to ensure that primary school learners who are missing out due to rotational learning make up on learning losses. There is little guarantee, if any, that the Department of Basic Education can provide learners with these remedial measures.

103.2. It is difficult to imagine, for instance, how the state will convince primary school learners who drop out, exasperated, discouraged by rotational learning, to return to school.

103.3. There is no way to "repair" the meals children miss every alternate day.

103.4. As the new academic year begins, some children will go to school every day, and sit in classrooms that can allow for social distancing. But most children will not go to school every day. Most children will be forced to go to school every second day. It is difficult to imagine a clearer example of inequality of opportunity. Once this inequality manifests, there is no way to repair it. Part B

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could take months to resolve. The inequality borne out in the meantime by the Directions will only get worse with each passing day.

BALANCE OF CONVENIENCE

104. The Applicant's prospects of success are strong in the constitutional challenge. The balance of convenience, for this reason alone, is tipped significantly in the Applicant's favour. Additionally, the harm that may result from granting the interim relief pales in comparison to the harm caused by denying it.

104.1. If the Court grants the interim relief, primary school learners will return to school. On all available evidence, the return to school, coupled with alternative measures to combat Covid-19, will not increase transmissions, contractions, or hospitalisations. In addition, more teachers, learners, and parents are vaccinated. At worst for the DA's case, it is *unclear* whether *anyone* will suffer if learners return to primary school. At best, granting the relief will have no negative effects at all.

104.2. If this Court denies the interim relief, then months of lost learning lie ahead. Primary school learners' constitutional rights will *definitely* be infringed. Once these rights are infringed, there is no meaningful way in which they can be remedied. The educational and psychological effects will be permanent.

105. Put simply, the harm of keeping the social distancing rule in place is certain and severe for children, primarily poor and Black children. Little if any harm will be caused by allowing schools to go back to teaching children. Where the Applicant's prospects of

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success are so strong, it is obvious that the balance of convenience favours granting the interim relief.

NO ALTERNATIVE REMEDY

106. The social distancing rule is enshrined in law. The DA has no choice but to bring a constitutional challenge. In the meantime, it is left with no choice but to seek an interim interdict. For the reasons given above, the ongoing violation of constitutional rights cannot be remedied in the future. There is no award of damages available. And no structural relief will remedy the harm already done.

IV PART B

107. The substantial basis for the relief sought in Part B is the same. The Directions and the Regulation are unconstitutional because they unjustifiably limit the rights to basic education, basic nutrition, for a child's best interests to be paramount, and to equality. They must be declared inconsistent with the Constitution and invalid.

108. The Applicant has asked for a record in terms of Rule 53. It is entitled to supplement its grounds of review in light of that record.

109. The Applicant seeks a declaration of invalidity, coupled with a reading-in of new regulations and directions that require schools to enforce social distancing as much as possible, without limiting teaching time, or learner attendance.

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V URGENCY

110. This application has been brought some time after the Directions and the Regulation were promulgated. However, it remains urgent to determine this application so that children can return to full time schooling as soon as possible while Part B is determined.

111. Until its July 2021 advisory, the MAC supported rotational schooling. The Applicant has opposed the majority of the ongoing restrictions and the existence of the national state of disaster since last year. However, it has not challenged the practice of rotational schooling because of the need to allow vaccine rollouts, uncertainty about new variants, and the hope that the government would itself end the practice for the new 2022 year. Given that the Omicron wave was not severe, vaccines were fully available, and its own advisory council recommended a return to ordinary schooling, this seemed highly likely.

112. But on 11 January 2022, the Minister of Basic Education made her intentions clear: the social distancing rule and rotational schooling is to remain. It was only at that point that it became apparent to the Applicant rotational schooling would continue in 2022. It then became urgent for the Applicant to bring this application.

113. After 11 January 2022, the DA consulted lawyers, lobbied the Minister, discussed the issue with experts, and deliberated with its members on whether to bring this challenge. As soon as it was clear to the DA that the school year was to begin as the previous ended – with the social distancing rule—and that given the latest evidence the social distancing rule is unconstitutional, the Applicant briefed counsel to bring this application.

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114. Importantly, the Applicant brings this application not only in its own interest, but also in the interest of all primary school learners who attend schools that are forced to teach on a rotational basis. Even if the Applicant could be criticized for the timing of this application, the serious and ongoing harm those learners are suffering.

115. School learners cannot obtain relief in the ordinary course. The Directions violate their rights on an ongoing basis. By the time the constitutional challenge is heard, a full school term or two may have passed. The amount of learning lost, on top of the amount lost last year, will in all probability never be recovered. The social and psychological harms of rotational schooling are permanent and irreversible. This stark fact, on its own, justifies the urgency with which this application has been brought.

VII CONCLUSION

116. For these reasons, the Applicant seeks the order as set out in its notice of motion.

JOHN HENRY STEENHUISEN

I certify that the deponent has acknowledged that he knows and understands the contents of this affidavit, which was signed and sworn to before me at Cape Town on this the 25th day of January 2022, the regulations contained in Government Notice No. 1258 of 21 July 1972, as amended by Government Notice No. 1648 of 17 August 1977, as amended having been complied with.

APO

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Republic of South Africa

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Cabinet approves several changes to the Adjusted Alert Level 1 COVID-19 regulations

30 Dec 2021

A special Cabinet meeting held earlier today, 30 December 2021, has approved several changes to the Adjusted Alert Level 1 COVID-19 regulations.

This follows meetings of the National Coronavirus Command Council (NCCC) and the President's Coordinating Council (PCC), which received updates on the management of the current 4th wave of COVID-19 in South Africa, which is mainly driven by the Omicron variant.

COVID-19 Update

The information gathered through the system used by the Department of Health has reported a 29.7% decrease in the number of new cases detected in the week ending 25 December 2021 (89,781), compared to the number of new cases detected in the previous week (127,753).

All indicators suggest the country may have passed the peak of the fourth wave at a national level.

Cases declined in all provinces except the Western Cape and Eastern Cape, which recorded increases of 14% and 18%, respectively. There has been a decline in hospital admissions in all

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provinces except the Western Cape.

While the Omicron variant is highly transmissible, there has been lower rates of hospitalisation than in previous waves. This means that the country has a spare capacity for admission of patients even for routine health services. There is a marginal increase in the number of deaths in all the provinces.

Changes to COVID-19 regulations

Based on the trajectory of the pandemic, the levels of vaccination in the country and the available capacity within the health sector, Cabinet has decided to make the following changes to Adjusted Alert Level 1 with immediate effect:

- The curfew will be lifted. There will therefore be no restrictions on the hours of movement of people.
- Gatherings are restricted to no more than 1 000 people indoors and no more than 2 000 people outdoors. Where the venue is too small to accommodate these numbers with appropriate social distancing, then no more than 50 per cent of the capacity of the venue may be used. All other restrictions remain in place.

The risk of increase in infections is still high given the high transmissibility of the Omicron variant. Government therefore calls on all organisers of these gatherings to ensure that all health protocols are observed at all times and that all attendees are encouraged to be vaccinated.

- Alcohol establishments that have licences to operate beyond 23h00 will revert back to full licence conditions.

The NCCC will continue to closely monitor the situation and will make further adjustments as necessary, particularly if pressure on health facilities increases.

The wearing of masks in public places is still mandatory, and failure to wear a mask when required remains a criminal offence.

South Africans are urged to continue observing basic health protocols to prevent the transmission of the virus.

Vaccination remains the best defence against severe illness, hospitalisation and death from COVID-19. All people in South Africa who have not yet done so are encouraged to vaccinated as soon as possible. This includes people who are eligible for booster shots.

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Parents are reminded to support their children aged 12 years and older to use this opportunity to vaccinate before schools open. This will avoid learners losing school time as a result of testing positive or as a result of contact with people infected with COVID-19.

Government wishes to commend all South Africans who have observed the health regulations and protocols over the festive season. Government urges everyone to continue to act cautiously and responsibly over the new year and for the remainder of the holiday season.

ISSUED BY MINISTER IN THE PRESIDENCY MONDLI GUNGUBELE

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The role of scientific output in public debates in times of crisis: A case study of the reopening of schools during the COVID-19 pandemic

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Abstract

In exceptional circumstances such as health pandemics, it is to be expected that policy actions are supported by a balanced use of scientific information to support decision-making that impacts the lives of citizens. However, situations in which no scientific consensus has been reached due to either insufficient, inconclusive or contradicting findings place strain on governments and public organizations which are forced to take action under circumstances of uncertainty. In this chapter, we focus on the case of COVID-19, its effects on children and the public debate around the reopening of schools. The aim is to better understand the relationship between policy interventions in the face of an uncertain and rapidly changing knowledge landscape and the subsequent use of scientific information in public debates related to the policy interventions. Our approach is to combine scientific information from journal articles and preprints with their appearance in the popular media, including social media. First, we provide a picture of the different scientific areas and approaches, by which the effects of COVID-19 on children are being studied (e.g., transmission, infection, severity, etc.). This provides a snapshot of the scientific focus and priorities in relation to COVID-19 and children. Second, we identify news media and social media attention around the COVID-19 scientific output related to children and schools. We focus on policies and media responses in three countries: Spain, South Africa and the Netherlands. These countries have followed very different policy actions with regard to the reopening of schools and represent very different policy approaches to the same problem. We analyse the activity in (social) media around the debate between COVID-19, children and school closures by focusing on the use of references to scientific information in the debate. Finally, we analyse the dominant topics that emerge in the news outlets and the online debates. We draw attention to illustrative cases of miscommunication related to scientific output and conclude the chapter by discussing how information from scientific publication, the media and policy actions shape the public discussion in the context of a global health pandemic.

Introduction

The COVID-19 pandemic has turned the world upside down. While it rapidly became clear that certain population groups are more at risk, with the elderly and adults who have underlying health conditions being at higher risk of developing severe illness from COVID-19, much uncertainty remained surrounding children (Rajmil, 2020). The uncertainty characterized both the infection rates among children as well as their range of symptoms. As empirical evidence accumulated at tremendous pace, fewer infection rates have consistently been reported in children compared with adults, as have the milder symptoms (Cruz and Zeichner 2020, Götzinger et al. 2020, Goldstein et al. 2020). Very few cases in children have been linked to severe symptoms, such as multisystem inflammatory syndrome and Kawasaki-like disease(Viner and Whittaker 2020, Webb et al. 2020).

Nonetheless, the infection rate in children is considered to be biased, given the testing policies in many countries. For example, in the Netherlands only those (mildly) symptomatic are eligible for COVID-19

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testing. And whereas everyone with cold-like symptoms could be tested over the summer, from September 26th 2020 up until the time of writing (December 2020), children of 12 years old or younger have been placed under special testing rules, and were only allowed to be tested following the presentation of serious symptoms. Adults and children older than 13 years of age could still be tested if they presented cold-like symptoms. The special testing rules stipulated being really sick or being in contact with someone who had tested positive for COVID-19. Children with cold-like symptoms have been allowed to attend school since September 26th 2020.

A substantial body of work about COVID-19 and children has focused on the role of children in spreading the virus. The role of children in the transmission of the virus was questionable from the onset of the pandemic, and the topic is still under debate. To illustrate: "Children may play a major role in community-based viral transmission" according to Cruz and Zeichner (2020) whereas Ludvigsson (2020) reports that "children are unlikely to spread the coronavirus". Media reporting reflects this debate. A recent news article in *Nature* (Lewis, 2020) reports that young children are unlikely to spread the virus, whereas an article in *The Conversation* (Hyde, 2020) states that "children may transmit coronavirus at the same rate as adults".

Despite the ongoing debate about the role of transmission in children, schools received distinct attention early on. The enclosed and crowded environment, prone to poor ventilation and where children and educators spend 6 to 8 hours daily, creates the conditions for a high-risk environment. Hence, strict measures have been necessary in the face of scientific uncertainty and closing schools was among the first measures taken worldwide to reduce the spread of the virus. China and Mongolia were the first countries to close schools in the middle of February 2020, followed by some schools in Italy and San Marino at the end of February 2020. By March 31st, schools in 193 countries were closed due to COVID-19.

The reopening of schools has been part of the first steps in the easing of lockdown restrictions. Whereas 43 countries reopened schools partially and other 40 countries fully reopened schools by June 15th, many other countries in the northern hemisphere postponed the reopening of schools until after the summer holidays. In a considerable number of countries, school reopening has been perceived as being safe, given the low levels of community spreading. Nonetheless, when community spread levels were not low, hot spots of infections were reported at a school and at a school camp (Stein-Zamir et al., 2020; Torres et al., 2020; Szablewski et al., 2020). An ECDC report on COVID-19 in children and the role of school settings in COVID-19 transmission concludes that "there is limited evidence that schools are driving transmission of COVID-19 within the community, however there are indications that community transmission is imported into or reflected in the school setting". Macartney (2020) has reported low transmission rates in the New South Wales educational system during the first wave of the COVID-19 pandemic. Even though most schools remained open in Australia during the first wave, class sizes were reduced during the peak. For some parts of the country (e.g. Melbourne) with high community viral spreading, schools did close.

There is thus no scientific consensus reached so far from the empirical research on children's role in the transmission of the coronavirus. Nonetheless, decision-making concerning school reopenings and closure could not and cannot wait for greater scientific consensus.

This chapter presents an exploratory attempt at tracing social discussion around a scientific topic under debate in the midst of a global pandemic, combining quantitative and qualitative methods. We focus on the case of COVID-19 and its effects on children which inform the public debate around the reopening of schools. We do so to better understand the relationship between policy interventions during an uncertain and rapidly changing knowledge landscape and the subsequent use of scientific information in public debates related to the policy intervention during a crisis. Our approach is to combine scientific information with their appearance in the popular media, including social media.

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We investigate the reopening of schools in three different countries (Spain, South Africa and the Netherlands), each of which introduced different policy measures, with the aim of analysing the societal reception of scientific findings in three different national and political contexts. In the case of the Netherlands, after an initial lockdown, schools reopened in May, at quite an early stage of the first wave of the outbreak and have been opened ever since (with the exception of summer holidays). In South Africa, the outbreak took place in March and schools closed until early June, just to close again a month later due to the rise of infections, and reopen again in August. Finally, Spain has been one of the European countries with the most restrictive measures at the early stage of the pandemic. Schools did not open until after the summer holidays. For each of these countries, we retrieved information related to these policy interventions as well as the dates on which announcements were made.

Conceptual framework

Our study is situated at the intersection between science, politics and society. We take as our starting point the fact that public communication about science is inherently political, and adopt Scheufele's (2014) conceptualisation of science communication as political communication. Such a conceptualisation takes into account the broader political contexts in which science–public interactions occur, how stakeholders compete for attention in the political sphere, and how publics interact with the scientific information they encounter in the media — information which may often be contradictory as well as overwhelming in complexity and volume. Moreover, the information is usually presented via multiple traditional and online channels, and may change rapidly during times of heightened uncertainty such as the COVID-19 pandemic.

The COVID-19 pandemic presents a unique case of science communication as political communication because the threat posed by the virus is both immediate and global. The consequence is a simultaneous and rapid response to the pandemic by scientists, politicians and the public alike.

Science responds to the crisis by conducting research aimed at understanding the behaviour of the virus and to develop effective responses to containing its spread. To share new truth claims with other scientists with the objective of accelerating the discovery of effective responses to the pandemic, findings from scientific research on the novel coronavirus are fast-tracked for publication in preprints and scientific journals. These findings are also communicated to policy-makers and to the public, either indirectly via the media or directly via briefings, press releases and social media.

While science advances understanding of the coronavirus, political decisions are taken to control the spread of the virus in order to protect society. These political decisions constitute policy moments in response to the pandemic. Political decisions are informed by the local context, including the progression of the outbreak and the prevailing political climate, and will to varying degrees be influenced by the available science. The degree of influence that science exerts over political decision-making is not only likely to depend on context but is likely to change over time as the perception of the threat changes and as other political issues such as the socio-economic impact and the infringement on citizens' constitutional rights begin to challenge the legitimacy of the measures taken to control the pandemic.

The social response to policy moments during the pandemic is reflected both in the mainstream and in the social media as citizens process and debate both the available scientific information and the political decisions taken. At the same time, scientists themselves seek to popularise or make more accessible the latest scientific information about the virus. Scientists are also attentive to the media leading to the 'medialization' of science, that is, to increasing links and interplay between science and the media (Weingart et al., 2012).

Data and methods

Our point of departure is the scientific output generated around the COVID-19 pandemic as it relates to children. This corpus of literature includes scientific papers with a broad scope of topic, including the mental and social effects related to policy interventions, effects of the lockdowns, the closure of schools, and medical issues related with the infection, transmission and diagnosis of COVID-19 in children. From this set of publications, we trace signals of discussion in social media and news media platforms, as a means to establish a link between the scientific and societal realms.

Data collection

The data collected for this study was extracted from a variety of sources: scientific publications, news outlets, and social media discussions and policy interventions. Since the outbreak of the pandemic, different community- and organization-led initiatives have been conducted to make scientific publications on COVID-19 openly accessible. In this study, we made use of the COVID-19 Open Research Dataset (CORD-19) and the World Health Organization (WHO) COVID-19 Global literature on coronavirus disease database. These two databases are of special interest due to the combination of sources they include, containing not only studies published in scientific journals but also preprints from the main global repositories (e.g., BioRxiv, MedRxiv, SSRN, etc.).

We downloaded the two complete databases on October 15, 2020. Table 1 shows some descriptive values of the size of the database at the time. We searched within the title and abstract fields for documents containing the words 'children' and 'schools'. After merging the 'Pubs children' documents of both datasets, a total of 5,713 publications were retrieved. This is our final set of scientific publications from which we trace their (social) media reception.

Table 1. Descriptive values of the publication databases used in the study.

database	Pubs	Pubs in= 2020	% DOI= in 2020	Pubs children	% DOI children
WHO	113,105	103,084	26.67	4,434	30.42
CORD-19	314,001	220,251	50.87	9,380	52.03
Merged final set (via DOI)	–	--	--	5,713	100

Note: Number of total publications by database [Pubs], publications in 2020 [Pubs in 2020], share of publications with Document Object Identifier (DOI) [%DOI in 20202], number of publications related to children and schools [Pubs children] and share of publications with a DOI related to children and schools [%DOI children]

The two databases (WHO and CORD-19) do not represent distinctive sets of publications, having quite substantial overlap. In order to avoid duplicates, the two databases were merged and cleaned. For a reliable merging of the two databases, as well as for the further tracing of the (social) media reception of the publications, it was necessary to count with unique document identifiers (e.g., PubMed Identifiers, Digital Object Identifiers, etc.). Particularly Digital Object Identifiers (DOI) are commonly assigned to scientific publications to univocally identify scientific documents across databases and the web-at-large. The main inconvenience of using DOIs is that we can only identify and combine publication data for half of the papers included in the CORD-19 database and a third of those included in the WHO database (Figure 1).

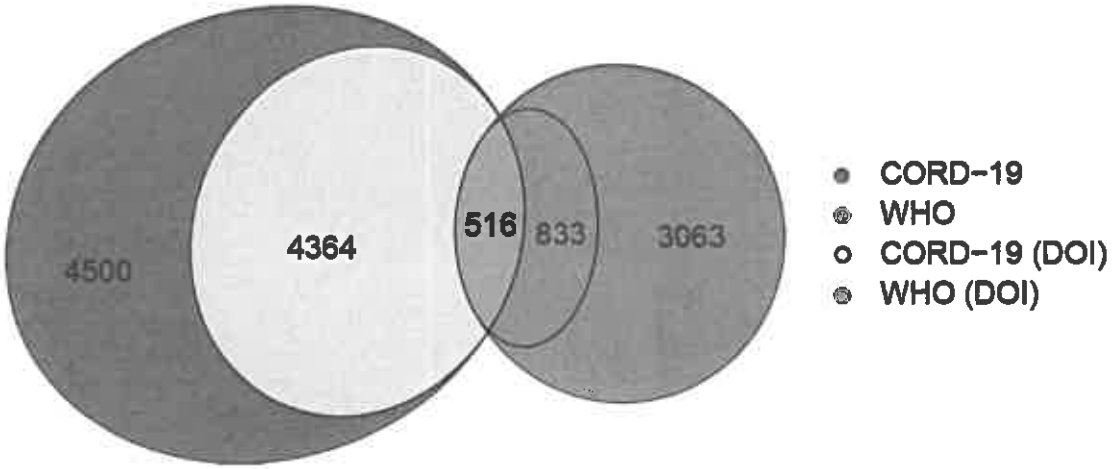

Figure 1. Number of publications from 2020 related to children and schools, indexed in the CORD-19 and WHO databases.

A final number of 5,713 publications along with their DOIs have been collected in our final dataset of scientific output. We proceeded to identify news outlets and social media discussions around the scientific publications in our dataset. News media items mentioning a DOI in our set were identified with data from Altmetric.com, retrieved in October 2020. From a total of 19,922 news items found globally for the set of DOIs in our database, 424 news articles could be identified as originating from the Netherlands, Spain, or South Africa. This was done by matching the URLs of the news outlet coming from Altmetric.com with the URLs of Dutch, Spanish, and South African national newspapers and broadcasting services, as extracted from Wikipedia and other websites listing news outlets. The final list of news outlets from each country was verified and curated manually. We identified 200 news items from Spain, which referenced 81 distinct DOIs. In South Africa, 79 news pieces referenced 72 distinct DOIs and in the Netherlands, 145 news items referenced 83 distinct DOIs. The titles and short abstracts of the news articles (where available in the data from Altmetric.com) were analyzed manually for our study.

Twitter data on mentions of publications were also collected from Altmetric.com in October 2020. This included any tweet identified by Altmetric.com that refers to a DOI in our set of publications. More detailed Twitter data was rehydrated directly from Twitter (using the Twitter API) on December 2nd, 2020. This resulted in a total number of 540,615 tweets, covering 66.7% (3,811) of the publications. The first identified tweet was on January 14, 2019, and the last recorded one on October 24, 2020. From our tweet data, 65.8% (182,548) of the 277,419 distinct Twitter users provided geolocation information. This allowed us to link tweets to the three countries selected in our study. We identified 16,548 tweets with a Spanish geolocation, which referenced 932 distinct DOIs. Much less Twitter activity was captured in the cases of the Netherlands and South Africa. In the Netherlands, 1,478 tweets were collected, linking to 229 distinct DOIs, whereas in South Africa, 1,062 tweets could be linked to 290 distinct DOIs.

Lastly, data on policy interventions regarding the closure and reopening of schools was retrieved from the UNESCO Institute for Statistics, which includes daily global information on the state of schools since the outbreak of the pandemic. With regard to the announcements and specificities of the measures, we manually searched national news media platforms.

Semantic analysis

We explored the general semantic configuration of the publications selected by means of co-word maps, extracted from the titles of the articles identified. We employed natural language processing tools to extract noun phrases from titles. We then created a binary co-occurrence matrix to build and

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visualize the final network. This network provided a baseline to visually inspect the whole body of literature related with COVID-19 and children. Moreover, it also offered a baseline on which to overlay Twitter and news media activity. This was done by coloring the nodes of the network (noun phrases) based on the number of mentions received by the papers containing such terms. Thus, terms with a higher intensity in the color grading belong to papers that are highly tweeted by users of a given country. Figure 2 provides a visual aid to help the reader better understand and interpret the contents of such maps.

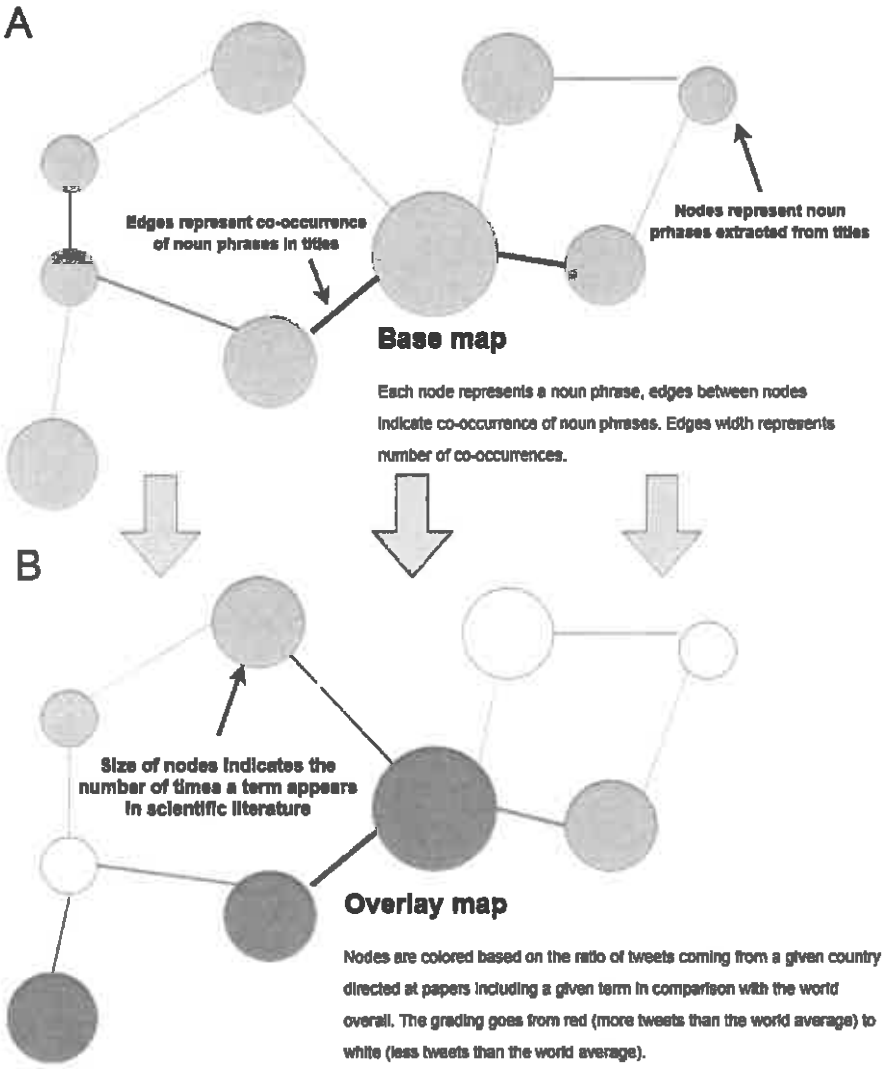

Figure 2. Graphical representation explaining overlay maps and how to interpret them correctly. Graph A shows the base map constructed with the complete set of scientific literature, while Graph B overlays tweet mentions to publications by coloring nodes based on the intensity of the tweets.

The data collected on news outlets and tweets were used to investigate the activity and topics covered in the (social) media when reporting scientific outputs, for each country. Overlay maps were used to show those topics. We include overlay maps for tweets in this chapter. We mention that single noun phrases "covid" and "children" were removed from the maps since they are redundant for our analysis. The overlay maps for news outlets are uploaded on figshare. For illustrative purposes, we selected examples to study differences in the reporting of scientific literature in the news media, by individually reading and analyzing the contents of selected scientific and news articles, and the tweets text. The specific findings will be reported for each country in the following section.

Results

Semantic structure of the research on children, schools and COVID-19

From a literature review and a clustering analysis, it became apparent that the scientific output consisting of 5,713 publications since the start of 2020 focused on the risk of infection, as well as on the development of mild or severe illnesses from COVID-19 in paediatric cases. The large number of asymptomatic cases, as well as the role of children in spreading the virus also received considerable attention. Despite the main focus on the physical health of children during this pandemic, attention was given to the psychological effects of quarantine and lockdown during COVID-19 (Orgilés et al., 2020; Idoiaga et al., 2020). The vulnerability of children during this pandemic was also researched (Haffejee and Levine, 2020; Fouche et al., 2020). Finally, inequality in home-schooling during the pandemic also received attention from scientists (Bol, 2020).

Reopening schools does not only involve the health and well-being of children but also of adults who come in close contact with children. In this regard, research focused on the risk of severe COVID-19 illness among teachers and among adults living with school-aged children (Gaffney et al., 2020).

Broad themes such as *infection*, *development of severe symptoms*, *transmission*, and *social and psychological impacts of school closures* were identified as dominant in the scientific literature on the subject of children and COVID-19. The underlying map is available on Figshare.

A manual search identified research output on children's health and school reopening within the three countries. The focus on the scientific output in the three countries varies. In Spain, significant attention has been given to hospitalization and to severe cases of children with COVID-19. Tagarro et al. (2020) reported on the early screening and severity of coronavirus in Madrid by investigating data from 365 tested children in the first two weeks of March 2020. Attention has also been given in Spain to the psychological effects and well-being of children (Orgilés et al., 2020; Idoiaga et al., 2020).

In the Netherlands, research has focused on the transmission of the virus by children. A study on 54 households "suggest lower point estimates for transmissibility of infection to close contacts from children aged under 19y, and higher point estimates for adults aged over 70y when compared to persons aged 19-69y" (RIVM, 2020). Alsem et al. (2020) reported on the effects of the pandemic on paediatric rehabilitation, whereas Bol (2020) investigated the inequalities in home-schooling.

In South Africa, research has been conducted on child protection and resilience (Fouche et al., 2020; Haffejee and Levine, 2020) and well-being (van Bruwaene et al., 2020), indicating a focus on the social aspects of school closures and lockdown. Additionally, attention has been given to multisystem inflammatory syndrome in children in South Africa (Webb et al., 2020).

The scientific output results in mixed evidence of infection and transmission as they pertain to children. The limitations of the scientific studies and the consequent levels of uncertainty were conveyed when reporting findings. This is, however, not a unanimous approach. For example, a viewpoint in the *Archives of Disease in Childhood* (Munro and Faust, 2020), is entitled "Children are not COVID-19 super spreaders: time to go back to school". The title appears to be inflated by the urgent need for policy decisions. The authors write "At the current time, children do not appear to be super spreaders. Sero-surveillance data will not be available to confirm or refute these findings prior to the urgent policy decisions that need to be taken in the next few weeks such as how and when to reopen schools." They continue "Governments worldwide should allow all children back to school regardless of comorbidities. Detailed surveillance will be needed to confirm the safety of this approach, despite recent analysis demonstrating the ineffectiveness of school closures in the recent past (Viner et al. 2020b). The media highlight of a possible rare new Kawasaki-like vasculitis that may or may not be due to SARS-CoV2 does not change the fact that severe COVID-19 is as rare as many other serious infection syndromes in children that do not cause schools to be closed". The title suggests no uncertainty

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regarding the role of children in the transmission of coronavirus. A more uncertain approach is taken on the severity of symptoms, where a rare disease "may or may not be" attributed to the novel virus.

Analysis per country of policy, news outlets and social media response

We investigated the (social) media response to the policy actions related to school closures and reopening. For this, we monitored news outlets and Twitter activity and investigated the extent to which they overlapped temporally with the policy actions. Moreover, we analyzed the topics covered by tweets and in news articles using the overlay maps. For exploratory purposes, we manually inspected the titles of news articles, as well as the full text of selected news items, and the content of selected publications. The analysis is presented for each of the three countries in our study.

Spain

While in the Netherlands and South Africa schools reopened after around two months of closure, in Spain school reopening was delayed until after the summer holidays. Figure 3 depicts the announced and implemented measures, in chronological order, both at the national, as well as the regional levels. The policy measures registered no difference between primary and secondary schools. The figure also includes the timeline distribution of the news outlets and tweets in our database, which have been identified as originating from Spain. A total of 188 news articles and 15,603 tweets were identified between the beginning of February and the end of September 2020. News articles on the topic registered brief appearances before the school closure in March, as well as more consistent appearances around the reopening of schools in September. As for tweets, we can observe small peaks around the time of the announcements in March, as well as shortly before and after the schools reopening in September. Further activity has been registered during the school closure, with peaks around end of April, when the government announced a plan for easing lockdown restrictions, as well as in July and August, when no other policy intervention has been announced nor occurred.

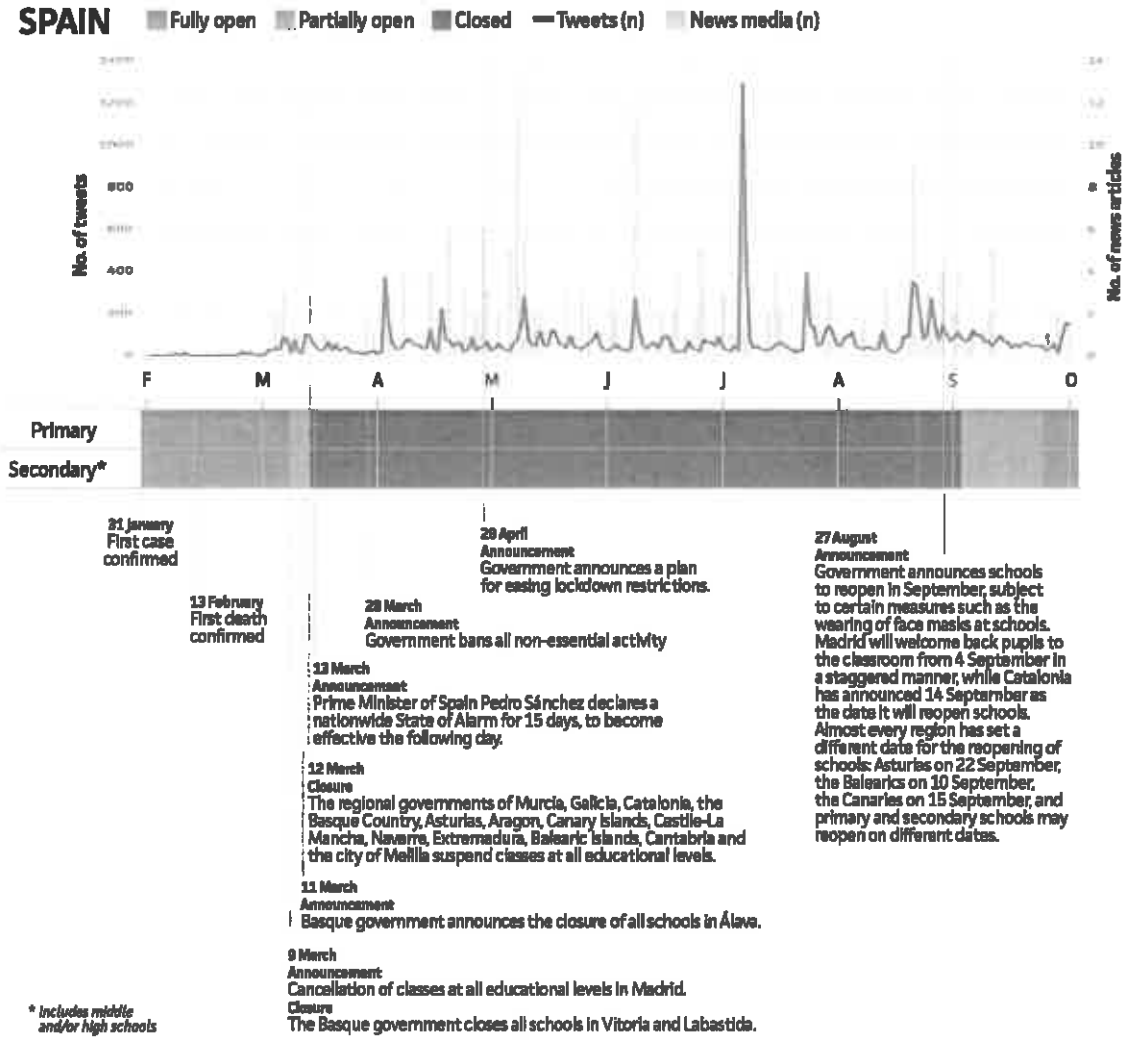

Figure 3. Timeline of announcements and implementation of school closure and reopening in Spain, along with the distribution of tweets (on the left y-axis) and news items (on the right y-axis) mentioning scientific articles.

The highest number of tweets in early July is the result of mentions received by a nationwide, population-based seroepidemiological study (Pollán et al., 2020) on the prevalence of SARS-CoV-2 in Spain (ENE-COVID). A total of 1,906 tweets followed soon after the article was published in the *Lancet*, at the beginning of July. The second-highest tweeted article (739 tweets) reports on paediatric severe acute respiratory syndrome (Yonker et al., 2020) and received distinct attention before the school reopening, as well as in September. Similarly, attention was paid before the school reopening to the safety of reopening (primary) schools during pandemic (Levinson, et al., 2020; Mallapaty, 2020).

In the case of news mentions, we do not observe the same activity pattern. There are almost no mentions in March, with sustained but low activity between April and July, and recurrent peaks on specific days at the beginning of May, June and July. This is followed by more constant activity in the media at the end of August, prior to the reopening of schools. The most mentioned article (20 mentions) received most of the attention in April. The article presents findings on the potential impact of the summer season on slowing the pandemic (Jüni et al., 2020) weighed against an alternative hypothesis that school closures account for such slowing. The two next most mentioned papers have 17 mentions each. In one case, Pollán et al. (2020) discuss the results of a nationwide screening undertaken in Spain between April and May. This paper concludes that at the time of the survey, there was a seroprevalence of around 5% with lower figures for children (<3.1%) and a third of the positive

cases being asymptomatic. The third study focuses specifically on children tested positive (Yonker et al., 2020) aiming at "understanding the potential role children play" (p. 45) in the pandemic.

An overview of the topics covered by tweets from Spain is depicted by a VOSviewer map in Figure 4. The nodes in the map present the co-occurrence of the most relevant keywords identified from the titles of the 5,713 articles in our dataset. The color coding of the map reflects the prevalence of mentions of those articles in tweets from Spain relative to the worldwide collected tweets: The darker the color, the more focus on the keywords relative to the worldwide tweets on the topic.

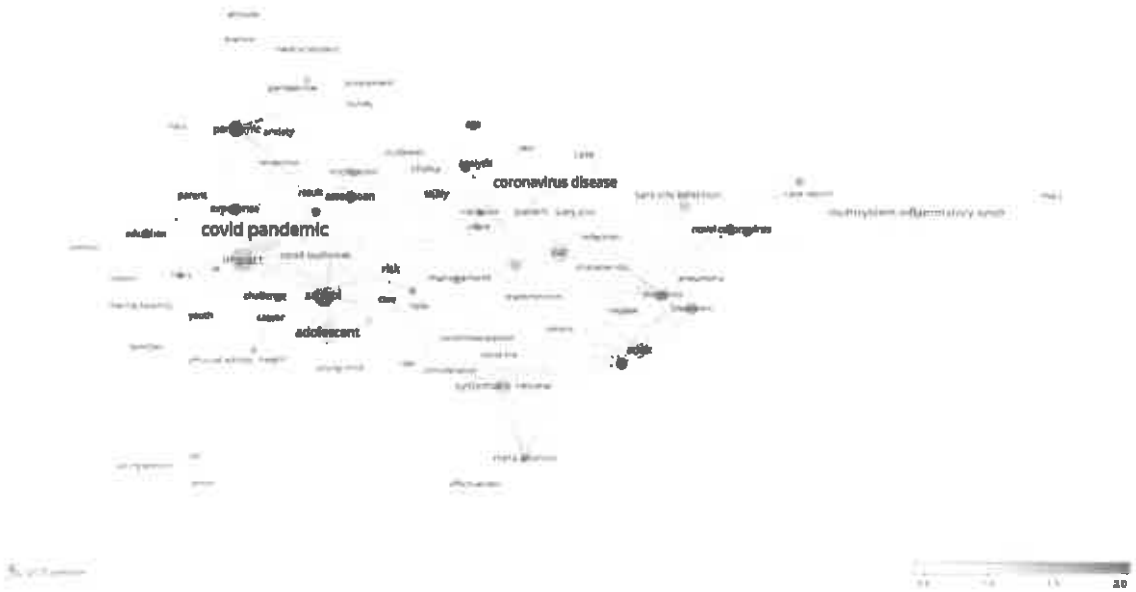

Figure 4. VOSviewer map of the topics covered by tweets in Spain relative to the overall tweets on children and school closure/reopening. A value of 1 (=yellow nodes) denotes similar focus on the topic as for the overall tweets, nodes in the colors orange-red indicate above average focus. Only top terms are included for visualization purposes (the noun phrases "covid" and "children" were removed since they are redundant).

The map in Figure 4 depicts more focus than is the case worldwide on topics such as *school* and *education*, but also on *adolescence*, *experience* and *impact*, which suggests a focus on the social implications related to school closure. Furthermore, an enhanced focus on infection and risk factors, diagnosis and treatment is visible on the right-hand side of the overlay map. The severity of symptoms, i.e., *multisystem inflammatory syndrome* appears to be at the same level as for the rest of the world, but at higher levels than for the other two countries. The news overlay map (not shown but uploaded on Figshare) shows less activity around the severity of symptoms and infection, but similar activities for transmission and school, school closure and impact.

South Africa

Figure 5 provides the timeline for the school closure and (partial) reopenings in South Africa. We note the differentiation between the reopening of secondary (high) schools and primary schools in July and August. Primary schools reopened later than secondary schools. A total of 74 news articles and 992 tweets were identified. Of the 74 news articles, 33 news articles were identified during the first school closure and only 18 in September. The most mentioned studies in the news are those by Yonker et al. (2020) and Hsiang et al. (2020), on large-scale anti-contagion policies, each with 3 mentions. Despite the comparatively low number of identified tweets, we observe Twitter activity around the announcement of school closure in March, and immediately after the first confirmed death, which

registers the highest Twitter activity. The highest number of tweets (92 tweets) was in fact in relation to a study on SARS transmission, risk factors and prevention in Hong Kong (Lau et al., 2020), and concerned the wearing of face masks. This illustrates a textbook example on how correlation between two apparent events does not imply causation.

The second peak of Twitter activity, registered in May around the announcement of a phased reopening of schools reveals discussions gravitating either around the Kawasaki-like disease or transmission of the virus by children. Similarly, the discussions from the end of June and beginning of July signal the first Europe-wide study of children (Götzinger et al., 2020) which suggests mild disease in children and very rare fatalities, and relates to the seroepidemiological study in Spain (Pollán et al., 2020). The Spanish study represents the second highest tweeted article, with 39 mentions.

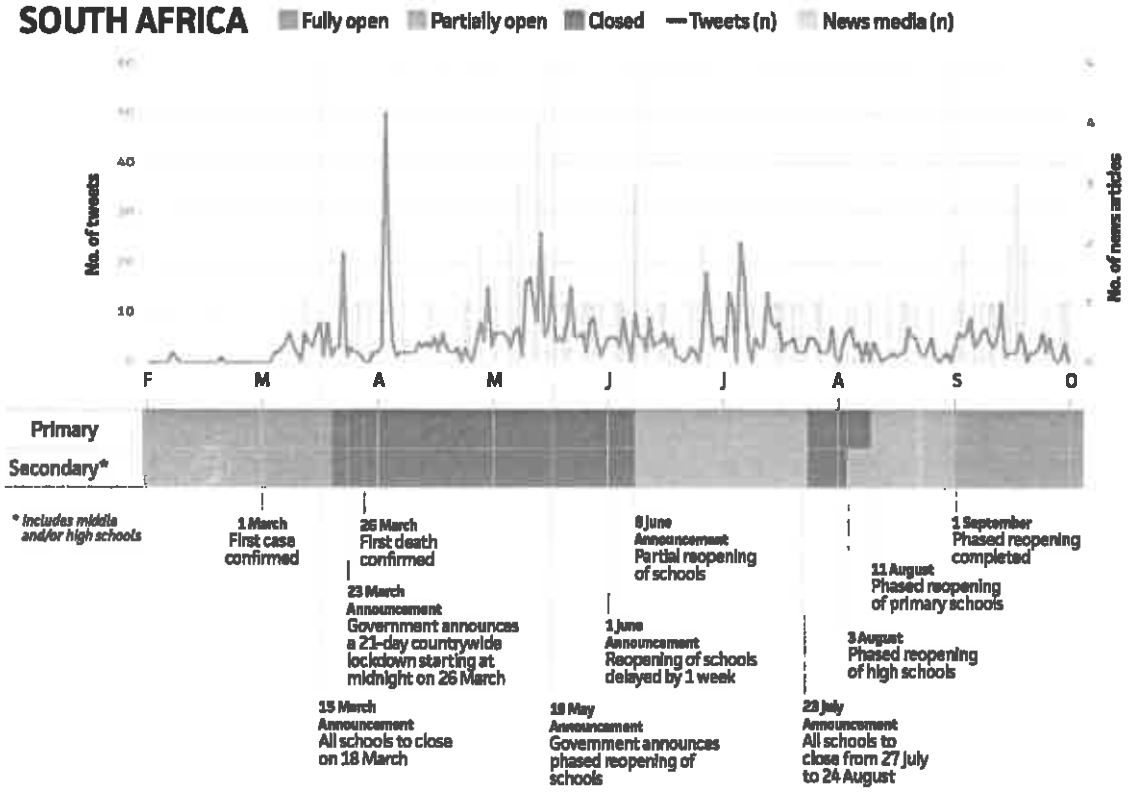

Figure 5. Timeline of announcements and implementation of school closure and reopening in South Africa, along with the distribution of tweets and news items mentioning scientific articles.

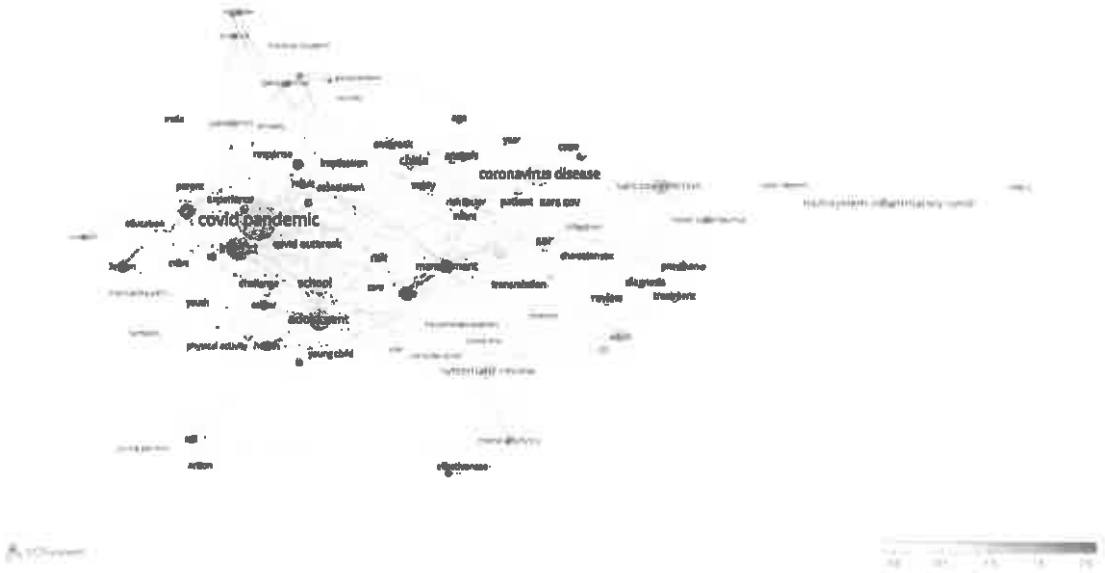

Figure 6. VOSviewer map of the topics covered by tweets in South Africa relative to the overall tweets on children and school closure/reopening. A value of 1 (=yellow nodes) denotes similar focus on the topic as for the overall tweets, nodes in the colors orange-red indicate above average focus. Only top terms are included for visualization purposes (the noun phrases "covid" and "children" were removed since they are redundant).

Figure 6 depicts the topics covered by the tweets in South Africa, relative to the total tweets on the topic. Despite the relatively low number of tweets on specific topics, we note that most tweets focused on social aspects (*impact*, *lesson*, *adolescents*), which are depicted on the left-hand side of the map, as well as on *infection*. The focus given to the severity of symptoms was less than in the case of Spain. The news map reflects more attention to the severity of symptoms than captured by the tweet map, similar attention to infection and transmission, as well as to the topic focusing on social aspects, and less attention to 'impact'.

The Netherlands

Similar to Spain and South Africa, the Netherlands' government decided to close schools in the middle of March. Unlike South Africa, primary schools were reopened first, at half capacity, whereas secondary schools reopened three weeks later, also at half capacity. Additionally, the partial opening was short (on June 8th and June 15th respectively), after which primary and secondary schools were fully open. Finally, it should be noted that the second school closure coincided with the summer holiday in the Netherlands. Figure 7 provides the graphical illustration of the measures, along with the announcements.

The news items and twitter activity over the period is also included. A total of 133 news articles and 1,277 tweets were collected. Most news media attention was dedicated to the topic during the school closure and the partial reopening — 38 news mentions were identified in April and May. Fewer mentions in the news were observed during the summer months, and 21 news mentions were counted in September. The study by Lau et al. (2020) was mentioned 13 times in the news, the highest number of mentions to a scientific article in the Netherlands, supporting the discussion around wearing masks. The authors report that "frequent mask use in public venues", along with other measures have been found to be protective factors. This finding introduces an interesting observation of the discussion around the face masks in the Netherlands, where face masks only became mandatory in December 2020. In Spain and South Africa, where mask wearing was made mandatory earlier on in the pandemic,

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we do not observe a reaction to this publication, with only one news mention in both Spain and South Africa. A report on coronavirus disease in children from the United States published by the CDC COVID-19 Response Team (Covid CDC et al., 2020) also received 13 mentions in the Dutch news media. The news items referencing this article vary in message. One is titled "Children appear to be less susceptible to corona [virus]", another reads "The number of children with COVID-19 has risen dramatically over the last five months" and another one "Mounting research paints a bleak picture for schools trying to reopen. Most large schools can expect coronavirus cases within 1 week".

Netherlands registers a relatively modest Twitter activity similar to South Africa. The first sustained discussion on Twitter was stirred up by the announcement on March 12th that schools will remain open. The tweets debated the government decision and the message transmitted by RIVM that children are less susceptible to become infected. The highest tweet activity was generated by the study by Lau et al. (2020) in early April, with 96 tweets. In the middle of May, a systematic review (Lecrerc et al., 2020) on the available literature on examples of SARS-CoV-2 clusters linked to indoor activities, caught the attention of tweeters in the Netherlands. The majority of 70 tweets focused on the need of outdoor sports (for children), as supported by the lack of empirical evidence for outdoor settings. Finally, the second-most tweeted (79 tweets) article mentioned paediatric SARS-CoV-2 (Yonker et al., 2020) and third-most tweeted output (with 71 tweets) provides scientific support for the wearing of face masks (Peeples, 2020). Even though face masks are not the topic of our study in this chapter, it is interesting to note again that in the Netherlands, face masks were not mandatory at the time of the Twitter discussion.

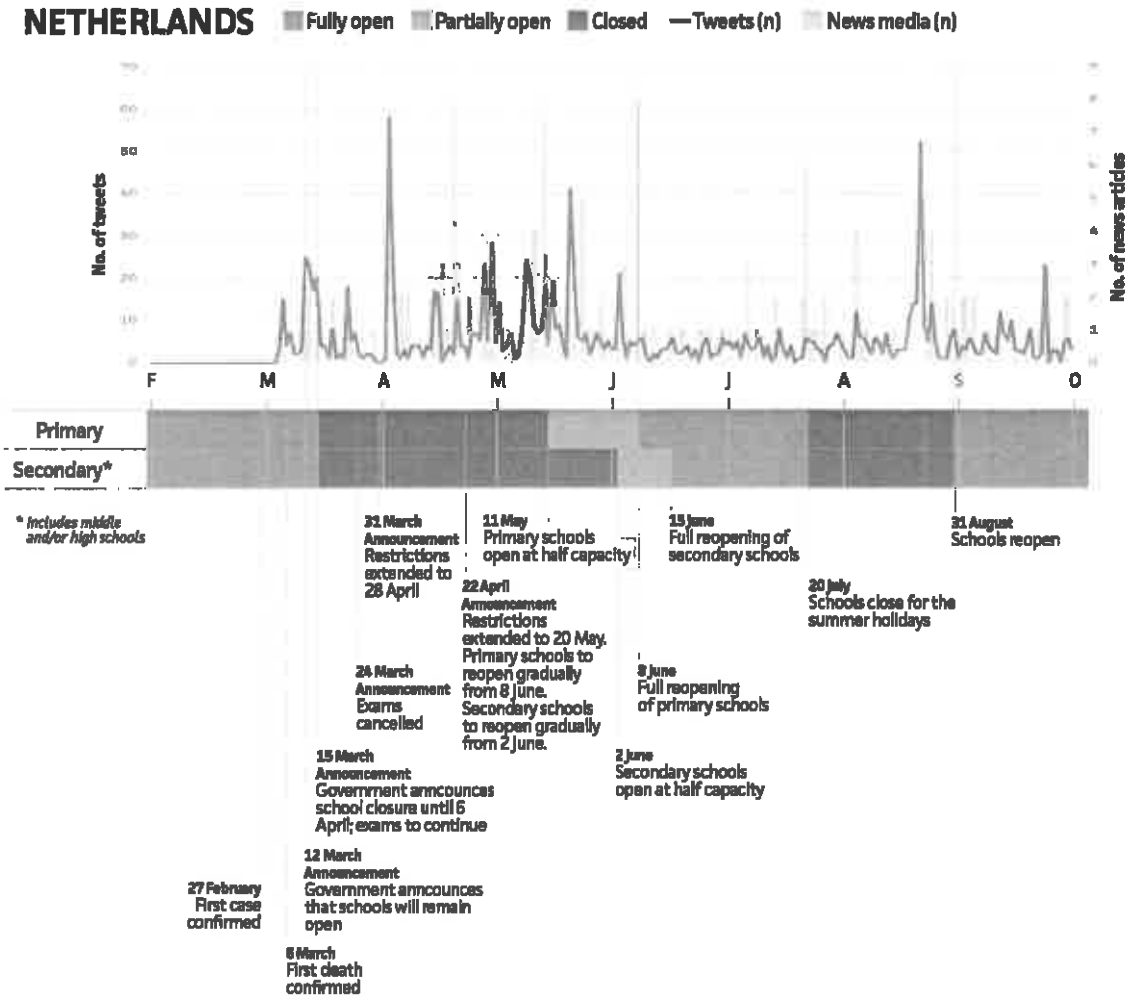

Figure 7. Timeline of announcements and implementation of school closure and reopening in the Netherlands, along with the distribution of tweets and news items mentioning scientific articles.

Figure 8 illustrates the topics covered by tweets in the Netherlands relative to the overall tweets on the topic. Unlike in Spain and South Africa, there is little focus on the social topics, which may reflect the early school reopenings in the Netherlands. Most tweets focus on infection and transmission, which are expected topics when schools are open. The news overlay map reflects less activity related to infection and slightly less to severe symptoms, but more to transmission and to school closure than the Twitter overlay map. Similarly, little focus is given to other social aspects.

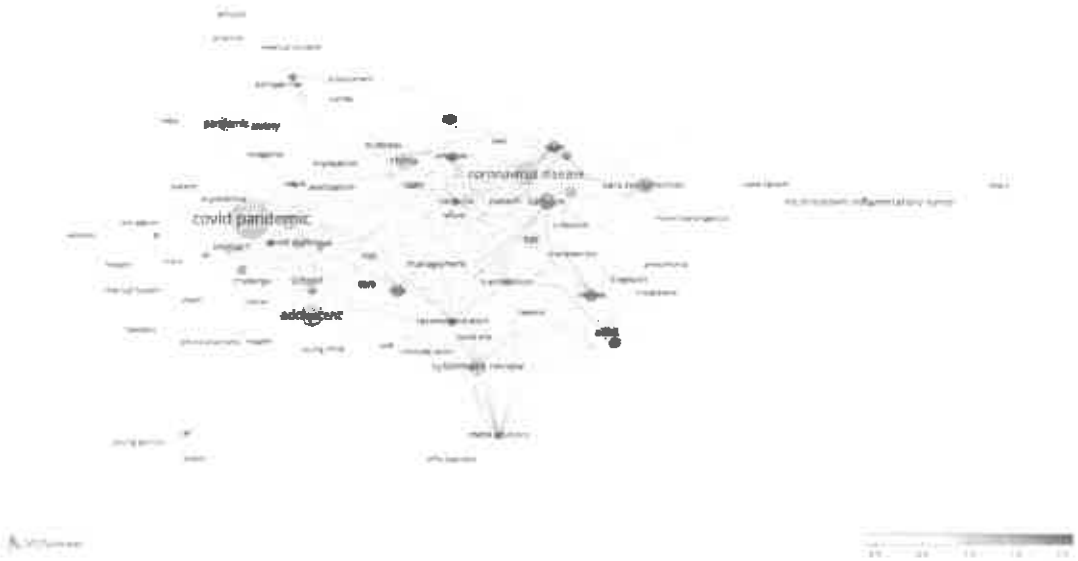

Figure 8. VOSviewer map of the topics covered by tweets in The Netherlands relative to the overall tweets on children and school closure/reopening. A value of 1 (=yellow nodes) denotes similar focus on the topic as for the overall tweets, nodes in the colors orange-red indicate above average focus. Only top terms are included for visualization purposes (the noun phrases "covid" and "children" were removed since they are redundant).

Overall news outlets analysis

The news outlets collected for the three countries were manually scrutinized further. An overall topic analysis based on the titles of the news articles reveals that *Infection* appeared in 8 articles in Spain, 12 in the Netherlands, and 2 in South Africa. Kawasaki or other (severe) diseases were mentioned in 7 news articles in the Netherlands, 4 in Spain and 5 in South Africa. *Transmission of the virus* registered the most attention, with 38 news articles in the Netherlands, 29 in Spain and 12 in South Africa. Similarly, *school closure* was covered by 21 news articles in the Netherlands, 6 in South Africa, and 5 in Spain. This is remarkable given that the Netherlands registered the quickest time to school reopening, which suggests that the news items generally supported the policy measures for schools reopening.

It is also notable that the news items in the three countries do not appear to have covered the scientific output of the national researchers. The only notable exception is the ENE-COVID national study (Pollán et al., 2020), which was mentioned in 20 news articles.

Overall, the most referenced article in the news items of the three countries is the study on paediatric SARS-CoV-2 (Yonker et al., 2020), which is also the second-most tweeted article in the Netherlands. The article was referenced in 25 news articles across all three countries.

Our exploratory analysis of the news articles also revealed cases of miscommunication in reporting the scientific findings in the news media. A first example comes from a recent systematic review and meta-analysis focused on the infection among children compared with adults (Viner et al., 2020a). Their conclusion was that "There is weak evidence that children and adolescents play a lesser role than adults in transmission of SARS-CoV-2 at a population level. This study provides no information on the infectivity of children." A *Nature* news article (Lewis, 2020) reported on the findings as follows: "Researchers suspect that one reason schools have not become COVID-19 hot spots is that children — especially those under the age of 14 — are less susceptible to infection than adults, according to a meta-analysis (Viner et al., 2020a) of prevalence studies."

The study on paediatric SARS-CoV-2 (Yonker et al. 2020) concludes that "children may be a potential source of contagion in the SARS-CoV-2 pandemic despite having milder disease or a lack of symptoms" (p. 45). After finding that regardless of the viral load most children are either asymptomatic or have milder disease, they warn "that it would be ineffective to rely on symptoms or temperature monitoring to identify SARS-CoV-2 infection" (p. 51). While the paper clearly emphasizes the potential risk of children spreading the disease, it does not present evidence of higher transmission rates from children. However, a news item from the Netherlands mentioning the article is entitled "Children with mild symptoms from coronavirus appear to be very infectious". Four other Dutch news items report the findings of the study, which are not in line with the guidelines from the National Institute for Public Health and Environment (RIVM) that children play a modest role in the transmission of the coronavirus. Spanish media presented a very different perspective on the paper's findings, warning in their news articles titles that asymptomatic children are spreaders of the disease.

A final example is linked to a Dutch news item entitled "Children 'do transmit COVID-19' to adults, says researcher whose study was 'misunderstood' as evidence that kids cannot spread coronavirus" published on April 30, 2020. The mentioned study is a review of 78 studies, from which one reports that no child under 10 years of age was found to transmit COVID-19. The article also reports that the German virologist Christian Drosten "pointed out that the findings of the Dutch study from 54 households (RIVM, 2020) which was used as evidence that children do not play a big role in spreading COVID-19, were not statistically significant".

Overall Twitter analysis

An overall Twitter analysis on the topics identified in the scientific output reveals further insights. *Infection* has been the most popular topic in the tweets in the three countries, with 3,031 mentions in Spanish tweets, 218 in Dutch and 216 in South African tweets. However, comparatively few tweets mention *community transmission* in relation with children as a vector of transmission. In Spain, we identified 156 mentions, South Africa 41 and in the Netherlands 12 mentions.

By the same token, the transmission of coronavirus among children has received appreciable attention, with 2,170 tweets in Spain, 125 tweets in the Netherlands and 97 in South Africa. In particular, the study by Stein-Zamir et al. (2020), which reports an outbreak in a high school in Israel, was referenced in 714 tweets in Spain — the third-highest tweeted article. The study points out that community transmission is replicated in a school setting and hence the risk of school reopenings while community spread is high. This suggests that despite the strict measures on school reopenings in Spain, the public debate accounted for the risks of less strict measures. The severity of COVID-19 symptoms in children was captured by 550 tweet mentions of *Kawasaki* and *multisystem inflammatory syndrome* in Spain, 47 in the Netherlands and 31 in South Africa. The tweets in the latter countries promoted a recent publication (Viner and Whittaker, 2020).

Munro and Faust's (2020) paper "Children are not COVID-19 super spreaders: time to go back to school" received appreciable attention in the social media. The article metrics, as observed on November 12, 2020, report that this article had been picked up by 45 news outlets, referenced in 2 policy sources of the Scottish government, and tweeted by 5,430 accounts. In spite of this, the article received modest attention in the three countries in our study: 202 mentions in Spain, 15 mentions in the Netherlands and 3 in South Africa.

We also investigated the profiles of tweeters whose tweets were collected in our dataset. In particular, we looked into the share of tweeters who had tweeted about science (i.e., tweeted an academic publication) before the pandemic, that is, tweeters from our sample present in altmetric data from 2019. We found that 59.3% in Spain, 60.6% in the Netherlands and 65.1% in South Africa had mentioned other scientific articles in their tweets prior to the pandemic. From the total of 8,597 distinct tweeters identified in all three countries, 5,141 had already referenced scientific output before the COVID-19 pandemic. Moreover, we attempted to determine the professions of the 8,597 tweeters.

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We identified 740 researchers, 741 health professionals, and 296 journalists based on terms found in the user descriptions of the tweeters. We note a possible overlap between the groups, as someone can be both a health professional and, e.g., hold a PhD (one of the indicators for being a researcher). Given the limited available information on Twitter and the limitation of our search algorithms, we expect that these results are underestimating the true presence of those professions in our dataset.

Discussion

This study explored the relationship between scientific advances and their societal reception in the context of a global pandemic. We focused on the COVID-19 pandemic and on the specific case of its effects on children. We investigated the publication of scientific findings related to COVID-19 and children, and how this scientific output has been used in news and social media communication following the government measures related to the closure and reopening of schools since the onset of the pandemic until late October 2020. Despite the broad scientific coverage of the topic, both in the news and social media, we observed locally-driven communication in the context of a global pandemic. Our illustrative exploration also identified a disconnect between the policy (political) timeline and the resultant communication in the social media, suggesting that the (social) media reaction to policy moments is not supported by frequent referencing to scientific output on the topic of children and school closure during the COVID-19 pandemic.

Our analysis of the scientific output revealed differences in the science published by researchers in Spain, the Netherlands and South Africa. Despite a global effort to advance knowledge on the COVID-19 virus in order to contain its spread, differences at the national level in terms of the focus of the research published was observed. In other words, our findings suggest that different scientific priorities may emerge during a global pandemic as determined by different socio-economic contexts as in the cases of Spain, the Netherlands and South Africa.

The available scientific output about the role of children and schools in the COVID-19 pandemic has not been picked up in the social media in the three countries in our study to the same degree. We found that only 17.9% of the publications in our database have been tweeted about in the three countries; this is much less than the coverage of about 63.0% of all attention for CORD-19 publications as overall captured by Altmetric (Colavizza et al. 2020). A total of 932 DOIs (16.3% of the scientific output) has been mentioned in the Spanish tweets on the topic. In the Dutch tweets, only 4% of the scientific output (229 articles) has been mentioned, whereas in South Africa 289 articles (5%) have been mentioned.

Furthermore, as the timelines reveal, Twitter activity as it relates to mentions of scientific papers did not mirror notable policy events, apart from weak evidence in the Netherlands. For most cases, where activity was noted, it was triggered by a scientific event (the publication of a paper). This observation tallies with the finding that, based on an analysis of Twitter profiles in the sample, approximately one in five of the Twitter accounts was identified as belonging to a researcher or a health professional. It is conceivable that social media is mirroring science given the number of health, research and other professionals in our sample. Moreover, we were able to identify differences in responses to the scientific output on the topic in the three countries. As in the case of differences in scientific focus between the three countries, a difference in focus in terms of social media content was observed, reinforcing the contextual nature of attention, particularly during a pandemic.

The expectation that scientific papers will be mentioned in the media is not unreasonable given high levels of fear and scientific uncertainty, and since we know that social movements can seek to mobilise action or advocate for a particular ideological position by referring to scientific information in the social media (e.g. anti-vaccination movement) (Van Schalkwyk, 2019). In our study, we found no evidence during the pandemic of a pro- or anti-schooling movement on Twitter. This claim is based on the lack of a universal or popular hashtag related to the topic and which would point to a specific community of attention on Twitter. Further support is provided by the fact that there are no highly active or

dominant Twitter accounts to be found in the data. One would expect to find highly active Twitter users in cases where the platform is used to amplify messaging. In the data, only two accounts (both from Spain) were found to have tweeted more than 100 times during the eight-month period. One of the accounts belongs to a paediatrician while the other to the Spanish Society for Paediatric Infectious Diseases. In the absence of an ideologically-motivated group, movement or collective, and some evidence that scientific rather than political activity is the driver of social media activity, Twitter is not in this case being used as a communication platform to amplify messaging about the risks or benefits of children attending school during the COVID-19 pandemic.

A more speculative explanation for the apparent absence of ideologically motivated groups is the demise of Twitter as a platform for politicised science communication in favour of other platforms and/or closed communication channels such as WhatsApp or Facebook groups, especially given the push by Facebook towards private communities as central to the future of the social network (Dwoskin, 2019), and the appeal of private groups to users (Holmes, 2018).

Similar to Twitter, the news media around scientific publications exhibited independent activity from policy moments. Nonetheless, we identified a number of cases of miscommunication of the scientific output in the news media, which illustrate that despite the apparent absence of politically-motivated communities, the intricacies of scientific studies are still not always accurately communicated in the media, and this may lead to distorted messages. These preliminary findings point to the need for further systematic research into the politicization of science communication in specific contexts and across multiple communication platforms during a global pandemic.

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Minister Angie Motshekga: Opening of schools for 2022 school year

11 Jan 2022

Statement by the Minister of Basic Education, Mrs Angie Motshekga MP, at the media briefing on the opening of schools for 2022 school year

Good morning and thank you for your time.

We welcome you to the first media briefing of the year, which happens just a day before schools reopen for the 2022 academic year. Tomorrow (12 January 2022), the five (5) inland provinces will be receiving leaners from Grades R to Grade 12. The five provinces include the Free State, Gauteng, Limpopo, Mpumalanga, and the North West. Schools in the four (4) coastal provinces – Eastern Cape, KwaZulu-Natal, Norther Cape and the Western Cape, will go back to school only next week.

Today, we will however give you the state of readiness presentation, which covers all the provinces. You will recall also that late last year we addressed the Portfolio Committee on Basic Education, where we presented the report, following the engagements we had with the provinces regarding their preparations for 2022.

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COVID-19 has had a devastating impact on the Basic Education Sector in the last 2 years. We have spoken before about the learning losses incurred as a direct result of the novel COVID-19 pandemic – from the loss of teaching and learning time, to education personnel losing their lives to COVID-19 complications. We have lost an MEC, an HOD, a teacher union leader, teachers, staff; and learners have also been affected.

We have sought to find every strategy to keep the Sector going, even under such difficult conditions. Working together with our stakeholders, we have been able to return all learners back to school at primary level.

In 2021 we recorded a significant decline in the number of schools that were closed and reopened due to COVID-19. This can be attributed in part, to the successful vaccination programme of education personnel from June 2021. Another important factor that has contributed to the relative stability in the Sector, is the adherence to COVID-19 health and safety protocols. We applaud our schools for doing all they can to ensure that protocols are observed at all times. We expect that the same will apply this year, as we intensify the implementation of our recovery programme.

We really need to work together to reboot the system, and get it back on track again. It will take time, but a concerted effort is required from all stakeholders.

Schools Admissions

The Department is aware that there are still learners who are yet to be placed in schools. At the moment, Gauteng is experiencing challenges in this regard; and we appeal to parents and guardians to cooperate with the District officials to resolve any matter. Traditionally, admissions take a year to process; but invariably, we find that due to a variety of reasons, admissions spill over into the ensuing year.

Delay admissions, impact on teaching and learning, as delays occur even where this should be avoided. We will continue to work with our provinces to ensure that we place all unplaced learners as a matter of urgency. We however, implore parents and guardians to accept the schools in which their learners are placed. When schools have reach their maximum capacities, further admissions become impossible.

Vaccination among learners

Late last year, the Department of Health announced that vaccines were available for young people aged of 12 years and above. We could not run the programme in schools at the time, as

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the Sector was seized with end-of-the-year assessments and examinations. We decided to defer the vaccination of learners to January this year.

Yesterday, the Departments of Health and Basic Education met to consider a vaccination plan, insofar as it affects learners in school. It was agreed that we need to increase the vaccination for everybody eligible. We have agreed to prioritise an advocacy campaign, to encourage eligible people – both adults and learners of eligible age, to go get their jabs.

Misinformation and hesitancy still pose a huge challenge; hence we really need to work hard, to explain the benefits of vaccinating. We need to raise awareness, and increase literacy; and address false and fake news regarding the vaccination.

For education personnel, vaccination sites are open. Your details are already on the system; hence you do not need to make prior bookings. Just present yourself, and vaccinate or get a booster shot.

We need to clarify that we are not vaccinating in school yet, because the Department of Health does not have the capacity to be in all schools. We will use existing sites for vaccination even for the 12-year-olds and above. Let me emphasise that vaccination is voluntary.

New Directions

The Department of Cooperative Governance and Traditional Affairs has on 30 December 2021, amended the Regulations in terms of the Disaster Management Act. In order to address the matter relating to gatherings, an amendment has as also been effected in the Directions for the Basic Education Sector. The amendment is with regard to the number of spectators permitted at school sport venues. That is the only change that we intend gazetting once stakeholders have made their inputs.

With regards to schooling, the situation will remain the same, especially rotational time-tabling, where it was applicable when we concluded schooling in 2021. The fact of the matter, is that COVID-19 is very much still with us, and we need to continue to work together to fight it. We are exploring possibilities to return schooling to normal, but we need to do so responsibly; and to this end, we rely entirely on the advice of public health experts, through the Ministerial Advisory Committee, the National Coronavirus Command Council, and indeed Cabinet. At the right time, we will come back to report on progress being made.

Matric Results

Lastly, next week, we will release the National Senior Certificate (NSC) examination results for the Class of 2021. Once again, we have observed the debate and discussion in the public arena on the pass requirements for the National Senior Certificate.

The Department and respected scholars, have sought to clarify this matter, and we will continue to do so. We however, discourage the spreading of misleading information regarding the NSC pass requirements. There is information we have made available in which we explain the pass requirements.

All that needs to be said is that 30% is not a pass mark in this country. If a candidate gets and aggregate of 30% in all subjects written, the candidate will surely fail. There are myths, which are being repeated year-after-year, almost by the same people on this matter; and it is unfortunate and disappointing.

Next week, we will demonstrate how the Sector has worked hard under difficult circumstances to support learners. We need to rally behind our learners, show them support, and not discourage them by spreading false news, which could affect their confidence and the future. We welcome constructive engagement, but what is happening now is nothing more than mischief making.

Let me provide you the NSC pass requirements, hopefully once and for all. Anything other than this, is a fallacy or a figment of one's imagination. We have three pass requirements, which can be summarised as follows –

1. **Admission to Bachelor Studies**

- Must obtain at least 40% for the candidate's Home Language (this is compulsory);
- Must obtain at least 50% for the candidate's four (4) other subjects, excluding Life Orientations;
- Must obtain at least 30% for the language of learning and teaching (LOLT) of the Higher Education Institution;
- Must obtain at least 30% for one (1) other subjects; and
- Must pass at least six (6) of the seven (70 subjects.

2. **Admission to Diploma Studies**

- Must obtain at least 40% for the candidate's Home Language (this is compulsory);
- Must obtain at least 40% for three (3) of other subjects, excluding Life Orientation;

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- Must obtain at least 30% for the language of learning and teaching (LOLT) of the Higher Education Institution;
- Must obtain at least 30% for one (1) other subjects; and
- Must pass at least six (6) of the seven (7) subjects.

3. Higher Certificate

- Must obtain at least 40% for the candidate's Home Language (this is compulsory);
- Must obtain at least 30% for the language of learning and teaching (LOLT) of the Higher Education Institution;
- Must obtain at least 40% for two (2) other subjects;
- Must obtain at least 30% for three (3) other subjects; and
- Must pass at least six (6) of the seven (70 subjects.

Ladies and gentlemen, there is another development, which we wish to announce today.

The Protection of Personal Information Act (POPIA), 2013 (Act No. 04 of 2013) came into effect on 01 July 2021. The DBE recognises that section 14 of the Constitution of the Republic of South Africa, 1996, provides that everyone has the right to privacy. This right to privacy, includes a right to protection against the unlawful collection, retention, dissemination and use of personal information.

In order to comply with the provisions of the POPIA, the usual practice of publishing the National Senior Certificate examination results on public platforms (media platforms), will not occur for 2021 NSC examination results. As was also the practice in previous years, c. In this way, every learner's personal information, with regards to the outcomes of the 2021 NSC exams, will be protected.

Second Chance Matric Programme

Yesterday, I official launched our campaign on the Second Chance Matric Programme in Mpumalanga. This programme is intended to encourage young people never to give up with their dreams. We will continue with this campaign, as we strongly believe it is right to do so.

The registration for the 2022 Matric rewrite examinations started on 01 October 2021, and will close on 15 February 2022 – therefore, there is about a month to register for the Matric rewrite. The mid-year exams, will start on 09 May 2022, and end on 23 June 2022.

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Learner wellbeing issues – a focus on prevention of learner pregnancy, violence, alcohol and drug abuse as well as sport, arts and culture

The DBE continues to implement the Partnership Protocol with the South African Police Service in promoting safety and security in all school. This is achieved through ensuring that all schools are linked to their local police stations and that a police officer is linked to every school. The Partnership Protocol contributes to the identification of problematic schools, as well as implementation of School Safety Programmes.

The Basic Education Sector is leading a collective of Deputy Ministers in the roll-out of the Anti-Bullying Campaign, which was launched in Gauteng during May 2021. The Campaign pulls together efforts of various Government Departments that contribute to the eradication and management of bullying incidents in schools, and making communities aware of various available interventions to address the Bullying problem.

Over the COVID period in 2020 and 2021, the Department has conducted monitoring on the implementation of the National School Safety Framework (NSSF) in ALL 75 Education Districts to gauge school compliance with the minimum requirements for school safety. All provinces identified their areas of support needs such as NSSF training as a means to assist schools to establish School Safety Committees, conduct school safety audits and develop school safety plans. This assists schools to eliminate the enabling factors to school violence and establish early warning systems. The NSSF has been tailored to assist eradicate other behaviours that pose safety challenges in schools, such learners bringing weapons, alcohol and drugs to school premises.

Since the report was received from the Ministerial Task Team to evaluate discrimination found in textbooks and LTSMs towards a policy to promote diversity through curriculum, teachers received training on Addressing Discrimination and Promoting Diversity in the Classroom. In response to some of the recommendations form this report, this year the DBE is finalising the Protocol for the Elimination of Unfair Discrimination in Schools, in addition to the Protocol to Deal with Incidents of Corporal Punishment in Schools as well as the Protocol for the Management and Reporting of Sexual Abuse and Harassment in Schools.

Nuances of intolerance, particularly of xenophobic nature, have been observed in society in general and the spill-over on schools. In partnership with the Foundation for Human Rights, DBE facilitates provincial dialogues on Addressing Xenophobia and "What it means to be an African" to sensitise children and youth about the unity of Africa. Working with civil society and international organisations, we intend to inculcate the values and principles of UBUNTU to

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prevent violent attacks and vandalism of community assets, which tend to spike during protests and unrest.

The recent statistics on pregnancy of young girls between the ages of 10 and 19 are concerning to the Basic Education Sector. As such, DBE has gazetted the Policy for the Prevention and Management of Learner Pregnancy (EUP) in Schools. Through this policy, we are on continuous engagement with other sectors and parents to strengthen the prevention of early and unintended pregnancy. Interventions such as the Let's Talks EUP, implemented with support from UNESCO, allow us to open up safe spaces of intergenerational dialogue on how we could, as a collective, best deal with the issue of teenage pregnancy.

Our commitment is to strengthen the Comprehensive Sexuality Education offering in Life Orientation to ensure that learners are empowered with knowledge and skills to make informed decisions about their health and sexuality, prevent HIV infection and pregnancy, and focus on their education. Where early pregnancy occurs, the policy will help the Sector support the pregnant learner and ensure that care and support is provided so that the unfortunate occurrence does not impact negatively on their education. The DBE calls of the parents, caregivers and community members to help us ensure that children are protected, especially because most of the time, pregnancy among children usually occurs as a result of sexual abuse and coerced sexual intercourse and sexual abuse.

The provision of co-curricular activities is one of our strong strategies to help us address social ills and risky behaviour among learners. We know that when they do not have access and opportunities to healthier alternatives provided in sport, arts and culture activities, they tend to engage in high risk behaviour. The COVID-19 period, forced the Sector to suspend these activities during the higher alert levels, as a way of containing the spread of COVID-19. We knew that we would not close for a very long time to avoid learners finding an outlet of their boredom in other risky behaviours. As such, the latest Directions for COVID-19 in Basic Education now allow for the resumption of sport, arts and culture activities in schools, taking into account the limits and COVID-19 safety measures of large group gatherings indoors and outdoors.

Progress of the overhaul of the History Curriculum in Grades 4-12

The History Ministerial Task Team (MTT) is working on finalising the overhaul of the History curriculum in Grades 4-12. The topics for Grades 4-9 have been finalized; and topics for Grades 10-12 will be refined and finalised this year. There were consultations held by the MTT with a reference team of History teachers and curriculum advisors in 2019 (Grades 4-9) and 2021 (Grades 10-12), on the proposed topics, concepts, skills and forms of assessment that must be included in the revised History curriculum.

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Broader consultations with relevant stakeholders will be conducted during this year, and will be followed by the submission of the draft revised History curriculum to Umalusi for evaluation and appraisal, to determine if the revised History curriculum meets the curriculum development and design standards.

Partnerships with our private sector

The DBE has a dedicated Partnerships Unit, whose primary focus is to establish and monitor the implementation of partnership programmes with the private sector. The contributions of our partners is generous, sincere and aligned to the priority areas of the DBE.

Some examples that relates to specific support areas. For instance –

In 2017, when we requested business to consider supporting the Read to Lead Campaign. This call was answered with enthusiasm. To date 1 128 libraries have been donated to the neediest schools by partners such as AVBOB. Companies, like Toyota and Volkswagen, support technical schools with equipment and expertise.

E-Learning – when we faced serious challenges with learning and teaching during the COVID-19 pandemic, MTN Foundation stepped in, and launched the MTN Online School. This allowed millions of learners and educators access and tools to continue their schooling, with no worries about data costs.

On School Infrastructure, the eradication of inappropriate school infrastructure, is a priority for this Administration. We have made significant progress in replacing asbestos schools and pit latrines. This progress could not have been achieved without the support of business. AVBOB, ASSUPOL, and others, has been the main contributor in our infrastructure programmes. Mining companies, especially in the platinum belt, continue to provide similar support for affected schools in the areas of their operations.

On Learner Wellbeing, Nestlé, Unilever, Tiger Brands and Colgate-Palmolive are some of the companies that help us to ensure the nutritional and psychosocial needs of our learners are met.

On DBE main events – such as the National Teaching Awards, the announcement of the NSC exam results, the Excellence Awards in Education, we are proud to inform the public that this event is fully sponsored by our partners. This is a significant, as such sponsor allows us to do more with what we have. We are eternally indebted to our sponsors, and implore them to continue all our Sector programmes to the extent necessary

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School Infrastructure

We are working very hard to address the infrastructure challenges at public schools. Under the ASIDI programme, we have completed two hundred and eighty-six (286) complete new schools; replacing old schools constructed of inappropriate materials. We completed water supply projects at one thousand, one hundred and fifty six (1 156) schools; and electricity supply at three hundred and seventy three (373) schools.

As at 10 January 2022, we remain with forty four (44) old schools constructed of inappropriate materials to be replaced; and one hundred and fifteen (115) schools that require water supply. All of these are scheduled for completion in 2022/23.

Under the SAFE programme, we have replaced basic pit toilets at one thousand, four hundred and thirty nine (1 439) schools. As at 10 January 2022, we remain with one thousand, four hundred and twenty three (1 423) schools, where basic pit toilets needs to be replaced. All of these are scheduled for completion in 2022/23.

In view of the above, it is heart-breaking when our own people vandalise the school infrastructure. There have been several incidents of blatant criminality, aimed at damaging or even destroying school infrastructure.

Over and above the vandalism, we need to address the school infrastructure damaged though storms. The bulk of these challenges are addressed by the respective Provincial programmes.

The Infrastructure Unit in the Department is conducting weekly meetings with the operational staff of all Implementing Agents. The updated weekly progress reports are then presented to the Executive Oversight Committee, consisting of the DG and the various CEOs of these Implementing Agents.

As part of monitoring, the DG conduct his own one-on-one meetings with the Implementing Agents, and has personally visited more than one thousand (1 000) construction sites.

Under the leadership of the Deputy Minister, bi-weekly meetings are held with the Infrastructure Unit to monitor progress and to identify any issues that require Ministerial intervention.

Conclusion

Let me invite the DDG Simone Geyer to present on our state of readiness for the reopening of schools for the 2022 academic year. The Director-Director will then make inputs on the other areas we had identified for this Media Briefing.

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I thank you

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COVID-19 learning losses: Early grade reading in South Africa

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ABSTRACT

Using three different studies on early grade reading from no-fee schools across in South Africa, this paper establishes short-term learning losses in reading for grade 2 and 4 students from under-resourced school contexts. We find that in 2020 grade 2 students lost between 57 % and 70 % of a year of learning relative to their pre-pandemic peers. Among a grade 4 sample, learning losses are estimated at between 62 % and 81 % of a year of learning. Considering that in 2020 students in the samples lost between 56 %–60 % of contact teaching days due to school closures and rotational timetabling schedules compared to a pre-pandemic year, this implies learning to schooling loss ratios in the region of 1–1.4. There is some evidence from the grade 4 sample that the reading trajectories of children benefiting more from attending school pre-pandemic – namely girls and children with stronger initial reading proficiency - are more negatively impacted. Mitigating the long-run implications of these learning losses will require a significant pivoting of the education system to ensure that instructional practices are appropriately levelled to optimise learning.

1. Introduction

A year after the World Health Organization declared the outbreak of the COVID-19 pandemic, around half the world's students were still experiencing complete or partial school closures (UNESCO, 2021). The length of school closures varies by development level with children from poorer countries missing substantially more classroom instruction time than children from high income countries (United Nations, 2020). Learning losses are not only the "opportunity cost" of lost learning which is the learning students would have gained over a typical year of schooling if schools were not disrupted, but potentially also include "deterioration" of knowledge that is forgotten over time (Angrist et al., 2021, Azevedo et al., 2020). Therefore, with prolonged closure, learning losses can be expected to exceed what is suggested by actual days of school lost (Gustafsson and Nuga, 2020). For a given level of remediation efforts, the larger the extent of these combined losses in early grades, the larger the detrimental impacts not only for later learning but for future life outcomes, human capital and ultimately economic growth (Azevedo et al., 2020, Hanushek and Woessmann, 2020; Kaffenberger, 2021; Angrist et al., 2021). School closures may also increase the risk of dropout for vulnerable children (Smith, 2021).

Among developing countries, the average number of schooling days lost has been high (Angrist et al., 2021; UNESCO, 2021) yet the ability of their education systems to respond to school closures and support remote learning has been limited. Education responses to the crisis depend crucially on home learning environments, parental ability to support learning, digital connectivity and skills; all attributes along which there is a great divide between richer and poorer countries (Avanesian et al., 2021; Hossain, 2021). Moreover, developing countries were facing a learning crisis prior to the pandemic with children already battling to keep up with curricula demands and classes characterised by high variability in learning levels (World Bank, 2018; Kaffenberger, 2021). School closures will likely amplify that variation and schools that are able to provide effective remediation and pivot to more targeted individualised learning will be in a better position to mitigate the impact. Disparities along all these dimensions are expected to exacerbate learning inequality between high- and low-income countries (Jones et al., 2021, Azevedo et al., 2020).

Governments, international organisations and education policy researchers urgently need accurate information on the costs of school closure if they are to optimally manage responses to the ongoing pandemic and design recovery strategies. Evidence on actual learning losses due to COVID-19 is only starting to emerge and comes almost exclusively from high-income countries where school closures were

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fairly short and schooling systems are highly effective (see for example Engzell et al., 2021; Maldonado and De Witte, 2020; Schult et al., 2021).

Existing studies on learning losses in developing countries (Angrist et al., 2021, Kaffenberger, 2021) and South Africa (Gustafsson and Nuga, 2020, Soudien et al., 2021) have used pre-pandemic data and extrapolated forward to provide suggestions about expected short-term learning losses and their longer-term impacts. This paper contributes to the literature on COVID-19 learning losses by providing evidence on the actual impact of COVID-19 disruptions on learning in a developing country using data collected pre and post COVID-19 related school closures. Our study draws on three different studies on early grade reading from no-fee schools located in three South African provinces. Using a difference-in-difference strategy, we estimate short-term learning losses in reading for grade 2 and 4 students from under-resourced school contexts. Our results highlight significant short-term losses in learning in 2020 due to COVID-19 disruptions of between 57 % and 81 % of a normal school year. South Africa simply has no option but to engage in significant remediation efforts in the coming years and to avoid future school disruptions as much as possible.

This paper is organised as follows. The next section summarises earlier literature on school closures, related simulations and the emerging evidence on COVID-19 school closures. Section 3 presents the data and schooling losses are described in Section 4. The methodology is discussed in Section 5. Results on learning loss are presented in Section 6. The final section concludes.

2. Background

While educational disruptions due to COVID-19 are unprecedented in length and global scope, previous empirical evidence on the impact of planned and unplanned school closures can provide some indication of the impacts we might expect.

Evidence on the impact of unplanned closures comes from teacher strikes in Belgium (Belot and Webbink, 2010), Argentina (Jaume and Willen, 2019), Canada (Baker, 2013) and South Africa (Wills, 2020); shortened school years in Germany (Cygan-Rehm, 2018; Hampf, 2019), children who missed school during World War II (Ichino and Winter-Ebmer, 2004) the 2005 earthquake in Pakistan (Andrabi et al., 2020), the 2014–2015 Ebola epidemic in West Africa (Bandiera et al., 2020; Smith, 2021) and Hurricane Katrina in the US (Sacerdote, 2021).

Several of these studies document long-term effects of school closures with affected children having lower educational attainment, lower earnings, higher unemployment and being more likely to be in lower skilled occupations in adulthood (Jaume and Willén, 2019; Belot and Webbink, 2010; Cygan-Rehm, 2018; Ichino and Winter-Ebmer, 2004).

There is a sizeable literature on learning losses over the planned long summer break in the US (see Cooper et al., 1996 for an early meta-analysis and Kuhfeld 2020 for a summary of more recent research). Similar losses have been documented in Canada (Davies and Aurini, 2013) and there is some evidence of the phenomenon in Europe (Lindahl, 2001; Meyer et al., 2017; Verachtert et al., 2009). In the same vein, researchers have documented learning losses associated with transitions between schooling systems in Ghana (Sabates et al., 2021) and the break between grade transitions in Malawi (Slade et al., 2017).

Learning losses tend to exacerbate existing inequalities as they disproportionately affect the most disadvantaged students. The gap between low-income and middle- to high-income children that accumulates over the summer vacations is well documented (Cooper et al., 1996; Allington et al., 2010)[1] . Post Ebola increases in high school dropout rates were highest amongst youth from the poorest households in Sierra Leone and Guinea (Smith, 2021). In Pakistan, mothers' education fully mitigated the impact of the disruption of the 2005 earthquake on learning losses (Andrabi et al., 2020).

In the absence of available data, several organisations and researchers have used prior research on school closures or extrapolations based of loss of share of a year of schooling to model and predict the likely impact of COVID-19 school closures on learning. Kaffenberger (2021) simulates learning losses using data from seven low- and middle-income countries. As a conservative estimate, they project that school closure lasting one-third of a normal year during grade 3 will result in a one-year deficit by grade 10. In their model, the initial learning loss is exacerbated as students return to school behind the curriculum and therefore continue to fall further behind as they move through school. However, the study results are sensitive to assumptions about the deterioration of knowledge over lost schooling days and the effectiveness of remediation efforts. Kuhfeld et al. (2020) provide projections for the US based on the analysis of summer learning patterns of five million students together with estimates from the absenteeism literature. They predict that grade 3–8 students would enter school in the fall of 2020 with losses of around 32%–37% of a normal year in reading and around 50%–63% in mathematics. These losses would be disproportionately experienced by weaker students, with the top third potentially making learning gains in reading. Azevedo et al. (2020) simulate scenarios for varying lengths of school closures and effectiveness of remote learning based on assumptions from the World Banks Learning Adjusted Year of Schooling (LAYS) data for 157 countries together with data from the Programme for International Student Assessment (PISA). Their simulations consider the effect of household income loss on school dropout in addition to the impact of school closures. They predict COVID-19 impacts of between 0.3 and 0.9 quality-adjusted years of schooling.

Gustafsson and Nuga (2020) model learning losses for South Africa, assuming a short-term learning loss to lost school day ratio of 1.25-to-1 to account for the deterioration of knowledge over school closures. Under this scenario and assuming students catch up to pre-pandemic trajectories after three years, they predict below-expected grade 12 outcomes up to 2022. Without successful catch-up, they predict below-expected grade 12 outcomes to last 11 years.

Since these initial modelling exercises, it has become evident that school disruptions have been longer than initially expected, extending well beyond 2020. Angrist et al. (2021) model contemporaneous impacts of COVID-19 related school closures on grade 2 and 3 reading fluency by the end of 2020 accounting for actual school closure periods (ranging between 13–45 weeks) but using pre-pandemic early grade reading assessment data from Ethiopia, Kenya, Liberia, Tanzania, and Uganda. They predict a cumulative 46 % increase in grade 1–3 students being unable to read a single word of grade-level text and as much as a 51 % decline in oral reading fluency at the mean across these countries overall. Projected forwarded, these losses could lead to 2.8 years of lost learning by grade 10. They note however that country specific impacts on early grade reading depend on the length of school closures, when lockdowns were imposed relative to school calendar cycles and the number of days of school that had taken place before the onset of school closures. Furthermore, their model predicts that the magnitudes of school closure impacts are particularly large for struggling readers (Angrist et al., 2021).

Previous evidence on school closures and the related simulations and projections can tell us something, but the world has never experienced disruptions on this scale. Not only are there concurrent shocks of a widespread global economic downturn but these shocks are being experienced simultaneously across the globe. School closures are happening at a time of heightened economic uncertainty, falling household incomes, rising unemployment and psychological costs associated with increased health and mortality risks. The unique challenges presented by COVID-19 underscore the need for empirical evidence of actual COVID-19 related school losses to inform policy responses to the crisis.

Evidence of actual learning losses due to COVID-19 school closures is starting to emerge from some of the highest income countries in Europe. Using standardized tests in the last year of primary school in Belgium,

[1] See Kuhfeld et al., 2020 for discussion on mixed findings on losses and disadvantage in the more recent literature on summer learning losses in the US.

Table 1
Sample comparisons.

	Grade 2	Grade 4
COVID group	FW cohort 1	EGRS II
	Grade 1 Term 4 (2019) ➡	Grade 3 Term 4 (2019) ➡
	Grade 3 Term 1 (2021)	Grade 4 Term 4 (2020)
	schools = 57, students = 435	schools = 180, students = 1899
Counterfactual	FW cohort 2	SPS
	Grade 2 Term 1 (2019) ➡	Grade 3 Term 1 (2018) ➡
	Grade 2 Term 4 (2019)	Grade 4 Term 3 (2019)
	schools = 57, students = 566	schools = 354, students = 2910

Maldonado and De Witte (2020) find that the 2020 cohort have mathematics scores that are 0.19 standard deviations lower than the previous cohort. Losses in Dutch were larger at 0.28 standard deviations. The also find that inequality within and between schools increased and that schools with a more disadvantaged student population experience larger learning losses. In a sample of Dutch primary schools, Engzell et al. (2021) find learning losses for reading, mathematics and spelling that are equivalent to the period of time that schools remained closed. Over the relatively short eight-week lockdown, learning losses were around 0.08 standard deviations with losses up to 60 percent larger for students with less-educated parents. Tomasik et al. (2020) compare learning progress in mathematics during the eight-week school closures in Switzerland to gains in the previous eight weeks. For primary school pupils, they find significant decreases in learning gains and significant increases in heterogeneity in learning during the school closures. They find no significant effects on secondary school pupils. Schult et al. (2021) compare reading and mathematics scores from mandatory tests conducted in Germany in September each year. Compared to the previous three years, grade 5 students in 2020 have scores that are lower by 0.07 standard deviations in reading comprehension, 0.09 in operations, and 0.03 in numbers.

As Engzell et al. (2021) points out, these findings surely represent a "best case" scenario from countries with highly effective schooling systems and relatively short school closure durations (between 8 and 9 weeks). The ability to respond to and recover from school closures depends on the length of closure and the capacity to support remote learning and remediate any gaps on return to school.

Despite the existence of studies that model learning losses in developing countries by extrapolating from pre-pandemic assessment data, there is a dearth of published empirical evidence on the impact of COVID-19 on short-term learning using assessment data collected during the pandemic. Although we acknowledge a small grey literature from low-to-middle income countries pointing to evidence of learning losses in samples from Kenya, Ethiopia, Pakistan and Sao Paulo, Brazil and preliminary references to learning losses in South Africa (Shepherd and Mohohlwane, 2021).[2] Collective findings from these studies highlight the negative impacts of school closures on numeracy and literacy skills, and how remote learning, where possible, is a poor substitute for in-school instruction (Lichand et al., 2021). This paper contributes to the evidence base on learning losses in developing countries. We exploit longitudinal data collected on early grade reading from three different provinces in South Africa to estimate learning losses in grade 2 and 4 due to COVID-19 related disruptions to schooling in 2020.

3. Data

To identify learning losses in grade 2 and 4, we draw on three longitudinal studies of early grade reading in Nguni home languages (isiXhosa, Siswati and isiZulu) and English across no-fee schools in different South Africa provinces. The three studies were conducted in the Eastern Cape, KwaZulu-Natal and Mpumalanga. All three provinces are considered some of the poorer provinces in the country, with 61 % of households in the Eastern Cape, 50 % of households in KwaZulu-Natal and 54 % of households in Mpumalanga being reliant on social grants (Statistics South Africa, 2020). With respect to educational outcomes as proxied by the end of secondary school pass rate in 2020, all three provinces are also of the mid to bottom ranking provinces, ranking 8th, 4th and 6th out of 9 provinces respectively (Department of Basic Education, 2021).

To estimate learning losses at the grade 2 level, we use data collected in three waves from an evaluation of the Funda Wande (FW) coaching intervention.[3] This study was set in the three urban and peri-urban districts in the Eastern Cape province. At the beginning of 2019 (wave 1), 10 grade 1 (FW cohort 1) and 10 grade 2 (FW cohort 2) students were randomly selected for assessment from 57 isiXhosa quintile[4] 1–3, or commonly referred to as a no-fee, schools. These same students were re-assessed in the final term of 2019 (wave 2) and in the first term of 2021 (wave 3).

The second Early Grade Reading Study (EGRSII)[5] was conducted between 2017 and 2020 in 180 no-fee schools in two districts in the Mpumalanga province. Reading outcomes were tracked for a single cohort of students from 180 schools over five data collection periods from the start of grade 1. Comparable assessment tasks in Nguni home languages (Siswati or isiZulu) and English First Additional Language (EFAL) are only available from the end of the grade 2 year in 2018 (wave 3), followed by the end of grade 3 in 2019 (wave 4) and the end of grade 4 in 2020 (wave 5).

EGRSII allow us to calculate learning gains over a period of COVID-19 disruptions, but identifying what learning trajectories would have looked like in a normal year requires a counterfactual sample. For this we draw on assessment data from the Story Powered Schools (SPS)[6] study. Using similar assessments to EGRSII, 10,233 grade 2–4 students were assessed in isiZulu, isiXhosa and EFAL from 354 no-fee schools in predominately rural KwaZulu-Natal and Eastern Cape province schools at the beginning of 2018 (wave 1) and term 3 of 2019 (wave 2).

[2] In Kenya, a small and non-representative study of students with high usage of an online maths tutoring programme exhibited declines in maths age from 9.28 to 8.98 when assessed again between October 2020 and March 2021 (Whizz Education, 2021). This implies a learning loss in excess of 3.5 months. In Pakistan, children enrolled in both private and public-private partnership schools were asked a simple two-item student mathematics assessment over the phone in September 2020 and again in February 2021 (Crawfurd et al., 2021). They identify that boys experienced learning losses while girls remain roughly on track as girls spent more time studying over the period than boys. The two-item assessment also suggests that poorer students are more likely to experience learning losses. In Ethiopia, emerging evidence suggests lower mathematics scores among grade 6 students at the start of the school year of about 30% to 40% as much as a normal year (Kim et al., 2021). The study by Lichand et al (2021) in Sao Paulo, Brazil, estimates the effects of remote learning on secondary education. Using difference-in-difference estimation, they contrast variation in dropout risk and standardized test scores between the first and the last school quarters in 2020 to that in 2019, when all classes were in-person. They find that drop-out risk increased 365% under remote learning, and average standardized test scores decreased by 0.32 standard deviations.

[3] Funda Wande develops videos and print materials to equip and train early grade teachers on how to teach reading in African languages. Trained teachers in the Eastern Cape intervention are supported by ongoing in-classroom expert coaching.

[4] Quintiles refer to Department of Basic Education proxies for the socio-economic status of a school. Quintile 1 to 3 schools are not allowed to charge fees and thus serve the poorest three quarters of students, while Quintiles 4 and 5 schools may decide to charge fees.

[5] EGRSII aims to support and strengthen the teaching of early grade reading in English as a second language through the provision of structured lessons plans, learning and teaching support materials and coaching.

[6] SPS is a reading for enjoyment programme run by Nal'ibali that provided home language reading materials and weekly visits from young adults trained in running and supporting activities to promote a culture of reading for enjoyment in primary schools.

Table 2
School days in 2020 for grade 2 and 4 students in the majority of study schools.

Term	Dates	Eastern Cape (FW): Grade 2			Mpumalanga (EGRS): Grade 4	
		Maximum possible school days per DBE regulations	School days for majority of sample schools	School days taking rotational timetabling into account	Maximum possible school days per DBE regulations	School days taking rotational timetabling into account, assuming official school timetable followed*
Term 1	15 Jan – 18 Mar	46	46	46	46	46
Term 2	8 Jun – 24 Jul	5	0	0	0	0
Term 3	24 Aug – 23 Oct	44	44	22	53	26
Term 4	2 Nov -15 Dec	32	25	12	32	16
Total		127	115	80	131	88
% of 2019 days (199 days)		64 %	58 %	40 %	66 %	44 %

* Actual school days for the majority of EGRSII grade 4 students in 2020 is unknown.

3.1. Sample sizes

Table 1 summarises the student samples used from these studies in this paper. We will compare the reading gains of students who were in grade 2 in 2020 (FW COVID group) against students who were in grade 2 in 2019 (FW counterfactual group) in the same schools. We will also compare the performance of students who were in grade 4 in 2020 (EGRS II COVID group)[7] against that of students who completed grade 4 between 2018 and 2019 (SPS counterfactual group). It is noted that across the three studies, assessment data from treatment and control schools are pooled together as treatment effects were modest, and there is no reason to expect differential COVID-19 disruptions by treatment.

Appendix A Table A1 summarises characteristics of the four groups of students making up the COVID and counterfactual groups in this study. While none of these samples is representative of a grade population nationally or provincially, these are relevant samples from which to examine learning losses in schools serving the poor in South Africa. All the samples are drawn from quintile 1–3 schools. Nationally, three-quarters of South African children attend these no-fee charging schools. Additionally, the Nguni home languages assessed among these sample students are spoken widely in South Africa.[8] Consistent with limited access to remote learning opportunities in no-fee schools, computer access among the student samples is also low (13–34 %).

The table reflects how similar the COVID and counterfactual groups are to each other with respect to school quintile and asset indicators of socio-economic status. It also confirms an equal mix of girls and boys across the groups. Finally, attrition rates across assessment waves are shown. Attrition rates are very similar across the grade 4 COVID and counterfactual groups at around 12%–14%. Among the grade 2 sample, attrition is notably higher among the COVID group at 20.6 % than among the counterfactual group (3.6 %). This is due to the longer period between the assessment waves (5 terms versus 4), and significant reports of children changing schools or not returning to school at all during the pandemic period. Compared to the sample reassessed in 2021, the grade 2 2020 sample that were not reassessed in 2021 had weaker reading outcomes in a previous assessment.

3.2. Assessments

The early grade reading studies used in this paper share common or very similar assessments in Nguni home language or English First Additional language (EFAL)[9]. In each study, fieldworkers administered a one-on-one Early Grade Reading Assessment (EGRA) with each student[10]. Supporting the grade 2 learning comparison using FW data, the COVID-group and counterfactual group of students completed equivalent letter-sound knowledge tasks and equivalent text reading tasks in isiXhosa across assessment waves. Supporting a comparison of learning gains at the grade 4 level, the same home language (isiZulu/Siswati) text reading task was administered to the COVID cohort from EGRSII in grade 2 (2018), grade 3 (2019) and grade 4 (end of 2020).[11] Similarly, the same home language (isiZulu/isiXhosa) reading passage was used to assess the counterfactual group from SPS. Across both SPS and EGRSII the English familiar word reading tasks were almost identical across grades and assessment waves.

4. School days lost

On 15 March 2020, the president of South Africa announced a range of measures to limit the spread of the COVID-19 pandemic including the closure of schools from 18 March to 14 April 2020. In the end, schools only gradually started re-opening from 1 June 2020 and were closed again from 27 July to 24 August 2020. During June and July 2020 there was a staggered return of students by grade starting with grades 7 and 12. Grade 2 and 4 students were some of the last grades to be allowed to return to school. Once schools opened again on 24 August 2020, compliance with health, safety and social distancing requirements meant that most schools could not operate at full capacity. Thus in addition to contact teaching days lost due to official school closures and the phased-in grade approach to school reopening, school days were lost due to strategies implemented to ensure adequate social distancing in classrooms, such as platooning or rotational timetabling. Additional days of schooling were also lost due to individual school decisions to reopen late or close earlier than scheduled for the year.

[7] EGRSII followed grade 1 students from 2017 and by 2019, 19% of students were still in grade 1 or 2. We exclude these students and restrict the sample to students who were in grade 3 in 2019.

[8] These three Nguni languages are classified as Southern Bantu languages. As the most widely spoken of South Africa's 11 official languages, isiZulu and isiXhosa comprise the first language for about 23% and 16% of the population respectively (Statistics South Africa, 2012).

[9] In South Africa the language of learning and teaching switches from home language in the first three grades to either English or Afrikaans in grade 4.

[10] Similar software platforms were used for administering one-on-one assessments and consequently standardised timing protocols were applied to timed tasks across the studies.

[11] There are strong grounds for pooling together Nguni language samples (specifically isiZulu and Siswati) for this study. A detailed examination of text passages used in these assessments reveal very strong similarities (see Ardington et al (2021)). We also do not find appreciably different results in the analyses that follow in disaggregating across isiZulu and Siswati speaking students.

Table 3
Percentage of grade 2 students absent on days they were meant to attend school after schools reopened from COVID-19 school closures, FW schools.

	Term 3, 2020	Term 4, 2020
None	4 %	9 %
Just a few (1 to 4)	53 %	63 %
Quite a few (5–10 students) but less than half	23 %	21 %
About half	12 %	4 %
More than half	4 %	4 %
Most were absent	5 %	
Total teacher responses = schools in study	100 %	100 %

Source: FW, Eastern Cape sample. Teacher responses from 57 schools.

In both the FW and EGRSII study, teachers were asked about the timetabling implemented in their school due to social distancing requirements when students returned to school in term 3 or 4 of 2020. The vast majority of the FW school sample (86 %) were implementing rotational timetabling in term 3 of 2020, with equal numbers either alternating classes within grades or alternating students within a class. For these schools with rotational timetabling, students were scheduled to be at school on 50 % of the teaching days. In term 4 of 2020, around 80 % of the EGRSII study schools were implementing some form of rotational scheduling.[12]

The first and fourth column of Table 2 shows the maximum possible days that schools could be open for grade 2 and 4 students in 2020. Schools were meant to teach up to 15 December 2020. In the FW sample, most of the schools had stopped teaching for grade 2 s by 4 December 2020. Accounting for fewer school days than officially scheduled and rotational schedules, grade 2 students would have had 80 school days which is only 40 % of the 199 school days in the 2019 school calendar. We don't know how many days the EGRSII study schools were open, but assuming a maximum number of scheduled days and rotational schedules, then at best grade 4 students could have attended school for 44 % of a normal school year.

4.1. Absenteeism

In addition to fewer scheduled days, data from the FW schools suggests that a significant portion of students never returned to school in 2020 after the initial school closure in March 2020. Between the end of 2019 and the beginning of 2021, 15 % of sampled students left the school. Of these students, the school reports that 29 % have dropped out and are not attending school at all. On average teachers from the 57 FW schools, report that 9 % of grade 2 students never returned in the 2020 school year and two teachers reported that over 30 % of their students never returned. The same teachers were also asked how many of their grade 2 students were absent on the days they were meant to be at school (see Table 3). In the third term, one in five teachers report that more than half their students were absent. This improved by the fourth term with only 7 % of teachers reporting such high levels of absenteeism.

There is less available information on absenteeism in the EGRSII study. As one available indicator of absenteeism, 75 % and 79 % of grade 2 and 3 teachers in term 4 2020 indicated that the number of students attending lessons in their grade was smaller than normal.

5. Method

To measure the impact of the pandemic on learning we need a plausible counterfactual against which to compare student outcomes. We employ difference-in-differences (DD), a quasi-experimental approach, and compare learning gains for grade 2 and 4 students during the pandemic against gains of their peers prior to the pandemic.

The DD estimate of the impact of COVID is defined as

$$\left(\bar{y}_{c=COVID,\ t=2} - \bar{y}_{c=COVID,\ t=1}\right) - \left(\bar{y}_{c=Counterfactual,\ t=2} - \bar{y}_{c=Counterfactual,\ t=1}\right)$$

where $\bar{y}_{ct}$ is the average reading skill for group c at assessment point t. We estimate the DD using Ordinary Least Squares regressions of the form

$$y_{ijct} = \alpha + \beta_1 C + \beta_2 T + \beta_3 (C * T) + \gamma_i + e_{ij}$$

where y_{ijct} is the measured reading skill for student i in school j in group c at assessment point t. C is a dummy variable indicating whether the student is in the COVID group and T is another dummy variable that takes the value one for the second assessment point. The term γ_i is an individual fixed effect and e_{ij} is an independent and identically distributed error term clustered at the school level to allow for correlation in the unobservables between students within the same school. We remove γ_i through first differencing and the DD estimate is obtained as the β_3 coefficient on the interaction between C and T.

Our DD strategy relies on the assumption that, in the absence of COVID-19, the pandemic cohort would have experienced a counterfactual achievement gain identical to the observed achievement gain in the pre-pandemic cohort. DD allows for the groups to be observationally different but assumes that this difference is constant over time and can be differenced out. The plausibility of this assumption depends on the particular setting to which DD estimation is applied.

Although DD does allow for imbalance in the level of the outcome of interest and other covariates between the treatment group and the counterfactual, the more similar the two groups are pre-treatment, the more plausible the assumption that the groups are inherently similar. For our estimates of grade 2 learning losses, there is no reason to believe that there would be systematic differences between the COVID group and the counterfactual group drawn from the same school. However, significantly higher attrition for the COVID group may have introduced some imbalance between the two groups although we find no evidence of this in student reports of household possessions at baseline (Table A1). In our grade 2 DD estimates we include school fixed effects which will absorb any time invariant between-school variation. We are therefore comparing pandemic learning trajectories against pre-pandemic trajectories within the same school.

For grade 4, while there are some differences in student reports on household possessions (Table A1), it appears the COVID group from EGRSII schools and the counterfactual group from SPS schools are fairly similar along these dimensions. Nevertheless, to minimise potential selection bias in the comparison between EGRSII and SPS we use coarsened exact matching[13] to match student characteristics pre-pandemic. We use the previous wave (wave 3) of EGRS II data to match students' reading performance at the end of grade 2 with performance at the beginning of grade 3 for SPS. In addition to reading fluency, we match on school quintile, gender and baseline household possessions (computer, television, refrigerator, car and flush toilet inside the household). DD models are then estimated with the counterfactual group observations weighted according to the outcome of the matching procedure.

6. Results

Descriptive results

Before we provide estimation results, we visually examine the performance of students during the 2020 school year and compare their learning gains against a relevant counterfactual group. We also visually inspect to what extent pre-pandemic learning trajectories of the COVID

[12] Grade 2 teacher responses from EGRSII indicate that 77 % of these schools followed rotational schedules, while grade 3 teacher responses from these schools suggest 84 % used rotational timetables.

[13] Coarsened exact matching (CEM) establishes balance between two groups by coarsening the matching variables into bins and exact matching units in the two groups on all coarsened variables simultaneously.

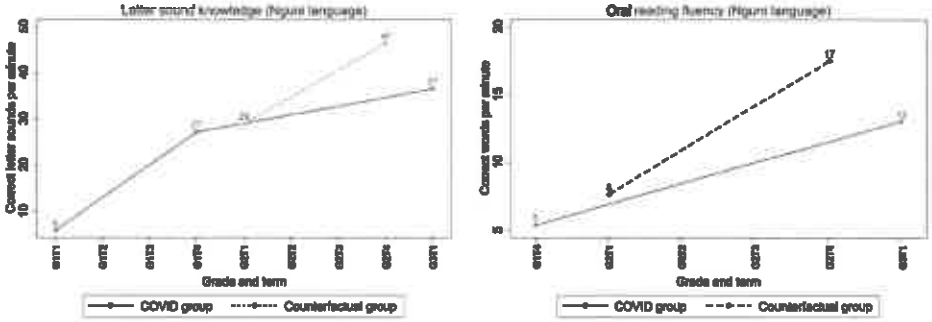

Fig. 1. Grade 2 learning gains – FW COVID group versus counterfactual.
Notes: Sample is restricted to students who are assessed in all three waves. G = grade and T = term.

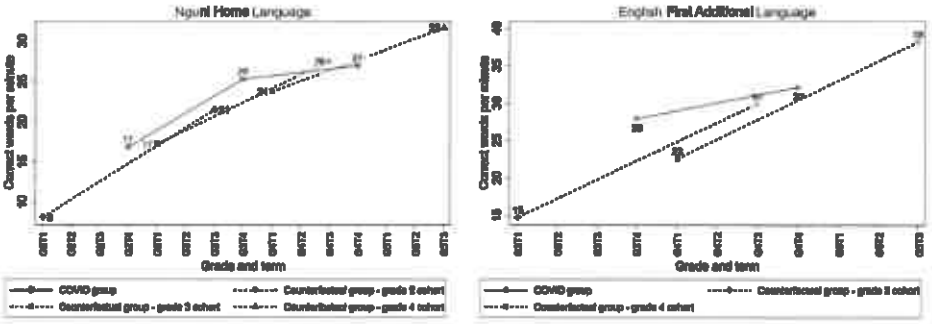

Fig. 2. Grade 4 learning gains by grade – EGRSII COVID group versus SPS counterfactual.

Table 4
Estimating learning losses.

	Grade 2		Grade 4	
	Correct letter sounds per minute	Home Language correct words per minute	Home Language correct words per minute	English correct words per minute
COVID-19 indicator	−16.00***	−7.339***	−6.900***	−6.537***
	(1.367)	(0.716)	(0.321)	(0.652)
Constant	22.73***	12.80***	8.557***	10.56***
	(0.594)	(0.311)	(0.198)	(0.558)
Observations (students)	1,001	1,001	4,761	4,736
R-squared	0.245	0.184	0.153	0.098
School fixed effects	YES	YES	NO	NO
Matching	NO	NO	YES	YES
% of year of learning lost	70 %	57 %	81 %	62 %

Notes: *** significant at the 1 % level, ** significant at the 5 % level, * significant at the 10 % level. Robust standard errors that allow for correlation in the unobservables between students in the same school in parentheses.

Table 5
Learning losses by initial reading proficiency.

	Grade 2		Grade 4	
	Correct letter sounds per minute	Home Language correct words per minute	Home Language correct words per minute	English correct words per minute
Initial reading proficiency - tercile 2	1.576	3.156**	1.073***	4.604***
	(2.762)	(1.386)	(0.364)	(0.456)
Initial reading proficiency - tercile 3	−12.90***	5.686***	1.035**	6.728***
	(3.161)	(1.362)	(0.432)	(0.493)
COVID-19 indicator	−19.54***	−7.299***	−6.483***	−4.129***
	(2.060)	(0.953)	(0.508)	(0.638)
COVID-19 x tercile 2	0.515	−0.267	−1.673***	−2.566***
	(2.857)	(1.680)	(0.622)	(0.872)
COVID-19 x tercile 3	10.23***	−0.0169	−0.0179	−3.289***
	(3.243)	(1.597)	(0.696)	(0.853)
Constant	26.47***	9.804***	7.890***	6.314***
	(1.862)	(0.722)	(0.316)	(0.334)
Observations (students)	991	991	4,682	4,656
R-squared	0.303	0.169	0.159	0.140
School fixed effects	YES	YES	NO	NO
Matching	NO	NO	YES	YES

Notes: *** significant at the 1 % level, ** significant at the 5 % level, * significant at the 10 % level. Robust standard errors that allow for correlation in the unobservables between students in the same school are shown in parentheses.

and counterfactual groups display parallel trends to support a DD analysis.

We start with the COVID group who were in grade 2 in 2020, comparing their gains in letter sound knowledge (left panel of Fig. 1) relative to a counterfactual group of grade 2 s in 2019 in the same schools. First, we observe pre-pandemic trajectories in letter sound knowledge across the two groups that display almost parallel trends. This is seen by comparing the solid line from point G1T1 to G1T4 against the dashed line from G2T1 to G2T4. Pre-pandemic, the average student in the COVID-group is also performing at a very similar level in term 4 of grade 1 (G1T4) as the average student in the counterfactual group at term 1 of grade 2 (G2T1) (27 versus 29 correct letter sounds per minute). However,

Table 6
Learning losses by gender.

	Grade 2		Grade 4	
	Correct letter sounds per minute	Home Language correct words per minute	Home Language correct words per minute	English correct words per minute
Initial reading proficiency - tercile 2	1.475	2.800***	0.158	3.334***
	(1.729)	(0.858)	(0.299)	(0.410)
Initial reading proficiency - tercile 3	−9.087***	4.823***	0.344	4.715***
	(1.953)	(0.846)	(0.359)	(0.428)
COVID-19 indicator	−17.08***	−5.540***	−6.292***	−5.285***
	(1.614)	(0.759)	(0.387)	(0.495)
Female	1.618	5.687***	3.142***	3.091***
	(1.721)	(0.984)	(0.321)	(0.333)
COVID-19 x female	2.662	−3.449***	−1.245**	−1.446**
	(2.066)	(1.042)	(0.514)	(0.640)
Constant	24.37***	7.272***	6.790***	5.815***
	(1.660)	(0.706)	(0.283)	(0.330)
Observations (students)	991	991	4,682	4,656
R-squared	0.295	0.265	0.181	0.151
School fixed effects	YES	YES	NO	NO
Matching	NO	NO	YES	YES

Notes: *** significant at the 1 % level, ** significant at the 5 % level, * significant at the 10 % level. Robust standard errors that allow for correlation in the unobservables between students in the same school are in parentheses.

almost a year after COVID-19 related school closures, the COVID group is only correctly sounding 37 letters per minute on average at the beginning of grade 3 (2021) in contrast to the counterfactual group who averaged 46 correct letters per minute in grade 2, term 4 (2019).

The right panel of Fig. 1 then shows the performance of these two groups on the oral reading fluency (ORF) task. No pre-pandemic trends in ORF can be observed for the COVID group as an ORF assessment could not be administered at the start of grade 1 when most students were unable to read even one word. But pre-pandemic performance is similar across the two groups. This is seen when comparing average ORF of the COVID group at the end of grade 1 (G1T4) with that of the counterfactual group at the start of grade 2 (G2T1). A year after the onset of the pandemic, however, substantially worse average ORF outcomes are observed for the COVID group at the start of grade 3 (G3T1) in 2021, compared with the counterfactual group at the end of grade 2 (G2T4) in 2019.

In a similar vein, Fig. 2 compares learning gains for EGRSII students who were in Grade 4 in 2020 against those of SPS students. The left panel summarises trajectories of correct words per minute in a Nguni home language (isiXhosa/isiZulu/Siswati) while the right panel focuses on correct words per minute in English (the language of learning and teaching from grade 4). Starting with home language and focusing on the SPS counterfactual group together with the SPS grade 2 and 4 cohorts, we see roughly linear growth in correct words per minute from the first term of grade 2 to the third term of grade 5. The pre-pandemic trend for EGRSII is parallel but we observe a sharp break from the trend over 2020. For English, we do not have pre-pandemic trends for EGRSII but given what we observe for home language, it is reasonable to assume in the absence of the pandemic that learning gains would be similar to those for SPS. However, the gradient for the EGRSII group during the pandemic is substantially flatter relative to their peers in the SPS study over a pre-pandemic period.

6.1. Estimation results

We now turn to the DD estimations of learning gains. The learning gain outcome measures divide the gain for each student by the number of days between the first and second assessments to take into account the different time periods between assessments. Gains are then scaled up to one year and coefficients are therefore expressed as differences in learning over a year. This scaling assumes linearity in learning over time. No available evidence in South Africa currently exists that points to non-linearity in learning over a school year. Additionally, South Africa's longest school holiday in a normal school year is only around four to five weeks so holiday losses are likely to be less of an issue than in settings with extended summer breaks[14] . Figs. 1 and 2 also support the assumption of a linear trend.

Table 4 presents DD estimates of the effect of the pandemic on students' reading trajectories in grade 2 and grade 4. The constant term indicates the learning gains of the counterfactual group and the coefficient on the COVID-19 indicator quantifies the extent to which gains were diminished for the COVID group. For the grade 2 comparison only, the DD estimates include school fixed effects and therefore identify learning losses within the same school. Starting with the first column, gains in letter sound knowledge in grade 2 were 16 letters per minute lower in 2020 than 2019. This represents 70 % of a year of learning lost. Grade 2 students in the counterfactual group improved their ORF by 13 words while those in the COVID group only improved by 5 words over the year.

There are reasons to believe that these learning losses are underestimated (in absolute terms). Firstly, school closures only came into effect from the second term in 2020 and we would expect students to have made progress along the same trajectory of the counterfactual group up to that point. Second, attrition was considerably higher for the COVID group and attrition is correlated with poorer initial reading proficiency. This means that a greater proportion of weaker students will be missing from the COVID sample than the counterfactual sample. The schools also report that a substantial portion of the students who have left the school have dropped out, suggesting that the attritors' outcomes would be even worse than their previous performance would predict.

The DD estimates for grade 4 do not include school fixed effects as the COVID and counterfactual groups are from different schools. Instead, we use coarsened exact matching to match students' initial reading performance, gender and school quintile. Appendix A Fig. A1 presents the raw and matched initial oral reading fluency distributions of the two groups. Unmatched estimates and estimates with matching models that additionally include baseline household possessions (computer, television, refrigerator, car and flush toilet inside the household) are shown in Appendix A Table A2. Results are substantively similar across all three models. We see a significant negative impact of the pandemic on reading in grade 4. Learning losses for grade 4 are around 7 words per minute for both home language and English. These reading fluency gains are between 19%–38% of the gains of the counterfactual group.[15] Expressed differently, the estimated learning losses in grade 4 are between 62%–81% of a year of learning.

6.2. Heterogeneous effects

The DD estimates in Table 4 and the appendix tables quantify the average impact of the pandemic across all students. We now consider whether the pandemic had differential impacts on specific sub-groups of

[14] The South African academic year coincides with the calendar year, which means that the summer break generally starts at the start of December and ends early in January. The 2018/2019 year-end holiday was three weeks and four days and the 2019/2020 year-end holiday was five weeks and four days. In 2019 there was a two week break after term one, a three week break after term two and a one week break after term three.

[15] We can also compare EGRS II learning gains against the SPS grade 4 cohort for whom we have assessment data from grade 4 term 1 and grade 5 term 3. Findings are substantively similar with estimates of learning losses of 73% in home language and 62% in English (Appendix A Table A3).

students. Two student level characteristics are investigated for any differential effects i) initial reading proficiency and ii) gender.

There are reasons to believe that the pandemic would have differential impact by initial reading proficiency but it is not immediately obvious in which direction. More proficient students may have been in a better position to continue learning outside of school than their weaker performing peers. Alternatively, schooling losses may have translated into greater learning loss for this group if their pre-pandemic learning was more effective. Table 5 shows the coefficients for DD models that include interaction terms between initial reading proficiency and the COVID-19 indicator[16]. Starting with letter sound knowledge for grade 2, we see that students in the top tercile have significantly lower gains in correct letter sounds per minute than students in the bottom quartile. This is not unexpected with a constrained skill such as letter sounds and diminishing improvements once students reach a level of around 20 correct letter sounds per minute have been documented in various isiXhosa reading studies (Ardington et al., 2020). For the three word reading fluency tasks, we see that initial reading proficiency is positively related to learning gains. For example, students in the top tercile in grade 2 see increases in their reading fluency that are around five words per minute higher than students in the lowest tercile.

The COVID-19 indicator remains substantial and highly significant across both grades and all tasks. Findings on the impact by initial reading proficiency are mixed. For grade 2 letter sound knowledge, the coefficient on the interaction term between the COVID-19 indicator and the top tercile is positive and statistically significant. This suggests that the pandemic had the most severe impact on the least proficient students and more muted effects on those with higher initial reading proficiency. We don't see such protective effects for grade 2 ORF where statistically insignificant interaction terms suggest all students were equally disadvantaged by school closures. In contrast, the grade 4 students with higher initial reading proficiency seem to have been most severely impacted by school closures. Students in the middle of the distribution of initial reading proficiency suffered greater home language reading losses than their peers at the bottom and top end. For English reading, compared to students in the lowest tercile, learning losses were 62 % and 80 % higher for the students in the second and third tercile respectively.

Table 6 presents estimates of the impact of the pandemic by gender. At each assessment point across grades and studies, girls outperform boys. We therefore include initial reading proficiency terciles and the female coefficient then identifies the additional learning gains for girls over boys in the same initial tercile. Similarly, the interaction term measures the differential impact of COVID by gender within the same initial proficiency tercile. For letter sound knowledge, we do not see a differential impact by gender. Across all three reading fluency tasks, female students were substantially more impacted by the pandemic. In grade 2, girls had learning losses of around nine words per minute in contrast to losses of six words per minute for boys. Learning losses in grade 4 were 20 % and 27 % higher for girls than boys in home language and English reading respectively.

7. Conclusion

This paper contributes some of the first evidence on the impact of COVID-19 school closures on learning in developing countries. Using three different studies on early grade reading in no-fee schools in South Africa across multiple provinces, this paper establishes learning losses in reading for grade 2 and 4 students. We use the performance of a 2019 grade 2 cohort in the same Eastern Cape schools as a credible counterfactual for the learning gains of grade 2 s in 2020. To estimate grade 4 learning losses, we drew on two sets of studies from three provinces to establish a COVID group and suitable counterfactual sample from equally under-resourced school contexts.

We find that grade 2 students lost between 57 % and 70 % of a year of learning when measured in terms of reading outcomes relative to their pre-pandemic peers. Among the grade 4 sample, we estimate learning losses of between 62 % and 81 % of a year of learning. As a point of comparison, students in the school samples lost about 56%–60% of the number of contact teaching days they normally would have received in a pre-pandemic school year due to a combination of school closures and rotational timetabling schedules. This implies learning to schooling loss ratios of between 1–1.4 in line with earlier assumptions of Gustafsson and Nuga (2020) at 1.25. We find however, that there is evidence to suggest that our grade 2 results likely underestimate learning losses. The grade 2 students who are not included in the estimations due to attrition, for reasons of having dropped out or higher absenteeism, have weaker pre-pandemic reading outcomes than those who were reassessed in a COVID-19 period. This implies higher ratios of learning lost to school days lost and thus a more significant deterioration of knowledge over school closures. However, it is also possible that ratios are overestimated if learner absenteeism was higher, and time-on-task was less than what is suggested in our data when schools reopened relative to a pre-pandemic situation.

Interesting distributional impacts emerge among the student samples. Although girls in South Africa typically perform better than boys, both in terms of their reading levels and trajectories within a normal school year, we find some evidence from both the grade 2 and 4 samples that girls' word reading is disproportionately negatively affected relative to boys. This pattern emerges even after controlling for student's baseline reading performance. One possible explanation for this result is that those who were benefiting more from being at school pre-pandemic are those that lose out the most. The grade 4 results show that the reading trajectories of children doing better before the pandemic (in reading terciles 2 and 3) are more negatively affected than those students with weaker pre-pandemic reading performance (tercile 1).

Larger national assessments, testing a wider range of skills, would be required to explore distributional impacts in more depth. Nevertheless, while our samples are neither representative nationally nor at a provincial level, they present the only available data to assess early grade learning losses in South Africa in the absence of any systemic national testing. The results are instructive for understanding how learning trajectories have been impacted in under-resourced schooling contexts where most children have had no access to remote learning opportunities. The results highlight the vital importance of ensuring schools remain open and that children attend school daily. However, a limitation of this study is that we are unable to apportion these learning losses to factors beyond schooling disruptions, such as shocks to household incomes, rising hunger and impacts of pandemic-related events on children's socio-emotional well-being (Wills et al., 2020; Favara et al., 2021).

In addition to 2020 school closures, the opening of schools for the 2021 academic year in South Africa was delayed by a month in response to a second wave of COVID-19 infections. On return, social distancing requirements were still in force. By mid-2021, well after these learning losses were observed, the students in the study samples would still only be attending school every second day. In lieu of the detrimental long-term consequences of learning losses in the lower grades, new directives were gazetted that all primary school children are expected to return to school for daily attendance from 26 July 2021 when schools reopen after a winter break (Government of South Africa, 2021).[17] The Department of Basic Education has also implemented a campaign to vaccinate all teachers and school support staff before the end of the second term 2021, limiting infection risks for teachers and ensuring they are more comfortable with a regular teaching timetable.

[16] For Funda Wande, we used principal components analysis to create a composite reading proficiency score and grouped students by tercile of this aggregate measure. For EGRS II and SPS, we grouped students by tercile of the outcome measures of interest at the first assessment point.

[17] These plans are, however, dependent on the country's risk-adjusted differentiated strategy which monitors the level of infections at a given time.

While it is almost certain that the learning deficits identified will continue to increase if more school disruptions are experienced, longer-term it is unclear whether these gaps will remain static, grow or narrow over time. Andrabi et al. (2020), Kaffenberger (2021) and Angrist et al. (2021) warn that short-term losses are likely to be a lower bound if pedagogy continues as usual in line with curriculum demands. As children are moved up grade levels, those who are behind will continue to learn less each year. Consequently, teachers face conditions similar to multi-grade classrooms requiring an increased focus on remediation.

Recognising the need for teachers to adjust their teaching to the competency levels of children in their classrooms, the Department of Basic Education developed a three-year curriculum recovery plan which entailed trimming the curriculum in 2020 and 2021 due to the reduction in available teaching time. The revised curriculum was articulated in Recovery Annual Teaching Plans to guide teachers on its implementation. The plan also sets out a strategy to re-focus on the teaching of foundational and core content, reducing assessment requirements while improving teachers' understanding of children's competency levels with respect to curriculum requirements. Successful implementation of this plan will, however, depend on the levels of agility possible within a large public system and teachers' ability to adapt and adjust.

Author statement

Cally Ardington: Conceptualization, Investigation, Methodology, Formal analysis, Writing - Original Draft, **Gabrielle Wills:** Conceptualization, Data curation, Writing - Review and Editing, Funding acquisition, **Janeli Kotze:** Conceptualization, Investigation, Data Curation, Writing – Review and Editing, Funding acquisition

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Appendix A

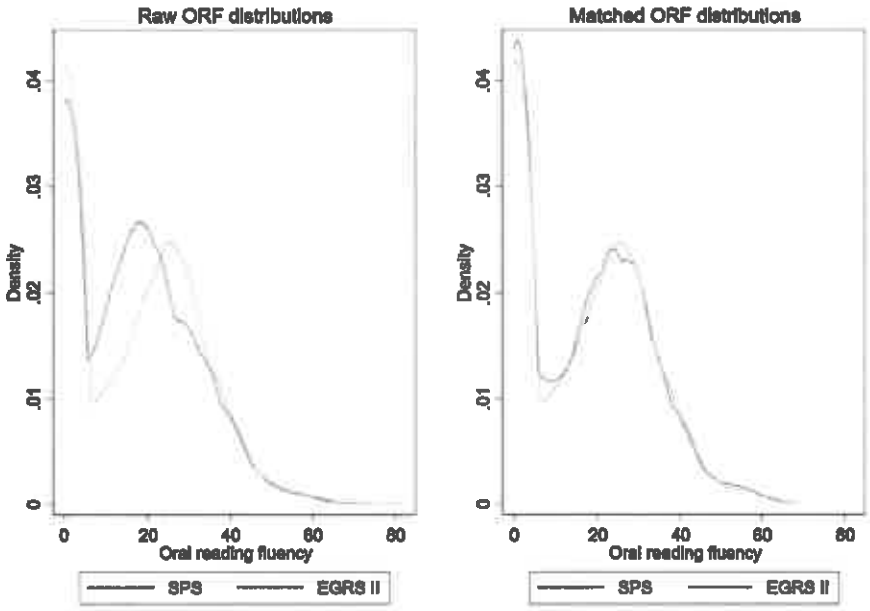

Fig. A1. Oral reading fluency at the end of grade 2 (EGRS II) and beginning of grade 3 (SPS).

Table A1
Sample characteristics.

	Grade 2		Grade 4	
	COVID group	Counter-factual group	COVID group	Counter-factual group
School quintile 1			53 %	55 %
School quintile 2			33 %	33 %
School quintile 3	100 %	100 %	13 %	12 %
Female	49 %	51 %	51 %	50 %
Computer	34 %	29 %	14 %	13 %
Television	94 %	95 %	74 %	72 %
Refrigerator	93 %	93 %	67 %	68 %
Car	52 %	52 %	21 %	44 %
Flush toilet inside house	60 %	60 %	12 %	13 %
Observations	428	546	1899	2910
Attrition between assessment one and two	20.64 %	3.64 %	12.12 %	14.26 %

Table A2
Grade 4 raw and matched DD learning losses estimates – EGRSII versus SPS.

	Home Language			English First Additional Language		
	Raw	Match 1	Match 2	Raw	Match 1	Match 2
COVID-19 indicator	−6.917***	−6.900***	−6.834***	−6.120***	−6.537***	−5.977***
	(0.312)	−0.321	(0.349)	(0.410)	(0.652)	(0.438)
Constant	8.563***	8.557***	8.421***	10.16***	10.56***	9.975***
	(0.181)	−0.198	(0.232)	(0.237)	(0.558)	(0.277)
Observations	4,809	4,761	4,026	4,784	4,736	4,004
R-squared	0.157	0.153	0.155	0.086	0.098	0.083
% COVID group matched		98 %	87 %		98 %	87 %

Notes: Coarsened exact matching used to match EGRS II students' oral reading fluency at the end of grade 2 (wave 3) with oral reading fluency at the beginning of grade 3 for SPS. Match 1 also includes school quintile and gender. Match 2 additionally includes baseline household possessions (computer, television, refrigerator, car and flush toilet inside the household).

Table A3
Grade 4 learning losses – EGRS II versus SPS grade 4 cohort.

	Grade 4	
	Home Language correct words per minute	English correct words per minute
COVID-19 indicator	−4.557***	−6.538***
	(0.300)	(0.403)
Constant	6.202***	10.57***
	(0.160)	(0.224)
Observations	4,777	4,751
R-squared	0.082	0.097
% of year of learning lost	73 %	62 %

Notes: *** significant at the 1 % level, ** significant at the 5 % level, * significant at the 10 % level. Robust standard errors that allow for correlation in the unobservables between students in the same school are in parentheses.

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health
Department:
Health
REPUBLIC OF SOUTH AFRICA

Date:	22 July 2021		
To:	**Honourable Ms Mmamoloko Kubayi, Acting Minister of Health**	From:	**Ministerial Advisory Committee (MAC) on COVID-19**

SCHOOLS FUNCTIONING AT FULL CAPACITY (DAILY ATTENDANCE BY ALL LEARNERS)

Problem Statement

Due to ongoing rotational timetables where children attend school only every second or third day, most children in South Africa continue to experience profound learning losses and lower rates of access to school meals. The impact of this loss is greatest in poorer or lower socio-economic communities and households, magnifying pre-existing educational inequities. Consideration needs to be given to whether schools should be reopened with all learners attending classes on a daily basis.

The questions that need to be addressed are:

1. Can all learners return to school safely on a non-rotational (full capacity) basis?
2. Should there be a differentiated approach to non-rotational school opening for all students based on the age of students or phase of schooling (Foundation, Intermediate, Senior and Further Education and Training (FET) Phase)?

Evidence Review

- While the COVID-19 pandemic in the community is ongoing, there is a continual risk of introduction of the infection into schools through learners and staff who acquire symptomatic or asymptomatic infections in the community.
- Children account for a relatively small proportion of SARS-CoV-2 cases and even smaller proportion of admissions to hospitals compared to adults.[1]
- Children of school-going age compared to adults are less likely to become infected with SARS-CoV-2.[2] However, older adolescents (15-19 years) have a slightly lower or similar rate of infection compared to adults.[3,4]
- A recent (June 2021) epidemiological analysis of South African households indicates that

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children are both less likely to catch and transmit COVID-19 as compared to adults (C Cohen, personal communication).

- Emerging evidence from a systematic review of global school transmission studies suggests very low infection attack rates and SARS-CoV-2 positivity rate in students and staff, although some included studies had methodological biases.[5,6]
- There are no consistent changes in community incidence trends associated with the timing of opening or closing of schools in South Africa.[1]
- Analysis of teacher payroll data showed no relationship between excess teacher mortality and the opening and closing dates of schools between March 2020 and February 2021.[7] This supports similar conclusions of the NICD.[8]
- Adherence to prevention interventions can make a significant difference to risk of acquiring SARS-CoV-2.[9]
- The prevention interventions include:
  1) engineering controls – (*what we can do to the environment* to reduce transmission), such as ensuring ventilation and maintaining distance between students in enclosed spaces;
  2) infection prevention and control - (*what we can arrange* to reduce transmission), such as screening, hand hygiene, cough etiquette, regular environmental cleaning and personal protective equipment, such as non-medical (cloth) face masks, and eye protection (visors) should prevent the spread of the virus from the individual with SARS-CoV-2 to other learners or staff in schools; and
  3) Administrative controls – (*what we can do to encourage* prevention interventions), such as having policies on screening, reporting and contact tracing.
- In March 2021, the US Centers for Disease Control and Prevention relaxed physical distancing requirements for children in school, from two meters to one meter - a change aimed at allowing more students to be inside classrooms. Face coverings remained mandatory.[10]
- There is no data on the effect of reducing physical distancing to distances less than one meter in school settings.
- In addition to education, schools provide nutrition and food security, and physical and psychological safety, which should be maintained even during the time of a pandemic.
- Recent South African evidence shows that learning losses at the primary school level in 2020 have amounted to 50-75% of a year of learning lost relative to the 2019 cohort.[11]

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- Recent data from a nationally representative household survey in South Africa (NIDS-CRAM Waves 1-4) shows that during lockdown in May/June 2020 while schools were closed, 16% of children experienced hunger "in the past 7 days", double the rate in 2018.[15] This declined to 12% in July/August 2020 but since the removal of the top-ups to the Child Support Grant at the end of October 2020, child hunger increased to 16% in November/December 2020 and moderated slightly to 14% in February/March 2021.[16] When schools were completely open (i.e. pre-pandemic and not rotational timetables) approximately 9.6-million children (80%) received a free meal at school every weekday.[17]
- The global literature highlights: (i) learning losses because of school closures, (ii) how pre-existing education disparities will widen during the pandemic (iii) in fragile educational systems, gains made over time will be wiped out and (iv) the effects beyond education. In South Africa, there is an achievement gap between learners based on socio- economic status. For the socio-economically disadvantaged attending schools is the only modality to access education opportunities as online options are not available and the longer they are out of school the greater the learning losses.[18,19,20,21]
- Studies have shown that reducing the number of days of schooling has an impact (reduction) on cognitive functioning, particularly crystallized intelligence (e.g. comprehension). Additional schooling time has the effect of raising performance scores, and the longer the time spent in school, the better the performance. [22,23, 24]
- Learners need continual cognitive stimulation. School closures and disruptions contribute to learning losses because of limited learning opportunities and memory decay. [21,22, 23, 24]
- The attendance of learners in-person at schools is important for their social and psychological development, but this should be done with full attention to ensuring the safety of children, educators, and other school staff members.

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Recommendations

- All primary schools should open at full capacity.
- Primary schools functioning on a full capacity basis should practice maximum feasible physical distancing between learners. Ideally, all children should be at least one metre apart within classrooms, but where this is not possible, full capacity schooling should still be commenced whilst maintaining the maximum feasible physical distance.
- With the move to full capacity schooling, the critical need for adequate ventilation within classrooms (open windows), appropriate use of face masks, and good hand hygiene practices needs to be strongly re-emphasized.
- Children should have mask breaks every two hours, which entails going outdoors and removing their masks for approximately 5 – 15 minutes.
- High schools can immediately resume full capacity learning if a physical distance separation of one meter between learners can be ensured. Where this is not possible, attendance on a rotational basis should continue presently, acknowledging the relatively higher risk of SARS-CoV-2 infection and illness in children aged 15-19 years.
- The Department of Basic Education should ensure that all schools have the necessary Personal Protective Equipment (PPE) as prescribed in its Standard Operating Procedures.

Rationale

- **It is the opinion of the school working group that the harms of learners attending school on a rotational basis - specifically the severe cognitive, nutritional, and psychosocial costs - exceed the benefits of reduced COVID-19 infections from smaller class sizes.**
- The majority of educators have been vaccinated, reducing their risk of SARS-CoV-2 transmission and disease acquisition.
- The rotational timetables were implemented to accommodate the MAC on COVID-19 recommendation that children must always maintain 1 metre physically distancing, including in classrooms.
- Given the new and emerging evidence of the tangible and realized costs to children of this approach, this recommendation is now revised.

Thank you for consideration of this advisory.

Kind regards,

PROF KOLEKA MLISANA **PROF MARIAN JACOBS**
Co-Chairpersons: Ministerial Advisory Committee on COVID-19
DATE: 22 July 2021

CC:

- **Dr S Buthelezi (Director-General)**
- **Dr T Pillay (Deputy Director-General)**
- **Incident Management Team**

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Servaas van der Berg & Nic Spaull

Counting the Cost

COVID-19 school closures in South Africa & its impact on children

15 June 2020

UNIVERSITEIT IYUNIVESITHI STELLENBOSCH UNIVERSITY

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Counting the Cost

COVID-19 school closures in South Africa & its impact on children

Servaas van der Berg & Nic Spaull

"In all matters concerning the care, protection and well-being of a child the standard that the child's best interest is of paramount importance, must be applied."
(Children's Act, 2005: p.34)

Executive Summary

The present paper sets out to offer evidence drawn from nationally representative household surveys, school surveys and administrative datasets, as well as research reports. The paper focuses on children, teachers and schooling with the following five focal areas: (1) school days lost to COVID-19, (2) comparing regular mortality risk by age to COVID-19 mortality risk by age, both for teachers and the public at large, (3) the feasibility of practicing social distancing within classrooms, (4) the social, economic and health costs associated with lockdown and school closures, (5) the challenges of re-opening the economy without re-opening schools, and especially the prevalence of young children being "home alone" without any adult care givers. We summarise the findings of each these areas below:

School days lost: Based on the government's current plans, by the end of Term 2 (7th of August 2020) South African children will have lost between 25% and 57% of the 'normal' school days scheduled up to that point as a result of COVID-19 school closures (depending on the grade of the child). If schools do not close again later in the year then children will have lost between 14% and 33% of the regular academic year (Table 1).

Comparing COVID-19 mortality risk and regular mortality risk: Using StatsSA data on 2016 mid-year population estimates and 2016 mortality figures, we calculate the regular mortality risk by age. This ranges from a 1-in-1000 chance (0.1%) of dying in the year for 0-19 year olds, and a 1-in-7 chance (15.2%) of dying in the year for those 80 years and older (Table 3). This is based on 2016 data and is not affected by COVID-19. We then look at the Department of Health's current projections for total annual deaths from COVID-19 in 2020, which range from 40 000 to 48 000 deaths (which are sourced from the Actuarial Society of South Africa (ASA) modelling, the Deloitte modelling and the South African COVID-19 Modelling Consortium (SACMC)). We use the Western Cape's COVID-19 age fatality distribution and apportion the higher number of deaths (49 000) across the population's age distribution to give the projected annual COVID-19 mortality by age. Given that these are now both annual figures we can compare "regular" annual mortality with COVID-19 annual mortality in 2020. We show that the risk of death from COVID-19 ranges from a 1-in-76 878 chance (0.001%) for

those aged 0-19 years, and a 1-in-94 chance for those aged 80 years and older. It is clear that "regular" South African mortality risk in 2020 is far higher than COVID-19 mortality risk for all age ranges. While age and comorbidities do increase mortality risk from COVID-19, the total number of projected deaths from COVID-19 in South Africa (48 000) is considerably smaller than the total number of annual deaths from "regular" causes (435 000). Although initially there was considerable uncertainty about the number of deaths that COVID-19 would cause in South Africa, and there is still some ongoing uncertainty, existing projections from almost all analysts do not show more than 48 000 deaths from COVID-19 in South Africa. We argue that the relatively low mortality risk from COVID-19 needs to be contrasted to the significant additional mortality risk from acute malnutrition and associated mortality in children (especially pneumonia, diarrhoea and HIV/AIDS) arising from the lockdown.

Social distancing: Reviewing the evidence on class size in South Africa, at least 50% of learners are in classes that exceed 40 learners per class (and 10 - 20% exceed 60 learners per class). South African classrooms are built to accommodate 40 learners with 1.2 to 1.5 square metres per learner. As a result, widespread overcrowding makes practicing social distancing in most classrooms in the country practically impossible. Given that COVID-19 mortality risk is very low compared to regular mortality risk (Table 3), and virtually non-existent for children, we believe the Department of Basic Education should acknowledge that it is not feasible for most South African schools to practice social distancing within the classroom. Other preventative measures like hand hygiene and mask-wearing for older children should be implemented but social distancing within the classroom should not be enforced.

Social, economic and health costs of lockdown and school closure:
Malnutrition and stunting: Even before the lockdown began, General Household Survey data showed that at least 2.5-million children experienced hunger and lived below the food poverty line. Approximately 1-million children under the age of five are stunted. Hunger and acute malnutrition are likely to have been severely aggravated by the lockdown and school closures since hundreds of thousands of informal workers lost all income and children no longer received free-school meals. Even though malnutrition is not often stated as the cause of death in South Africa, it often remains an important contributor. Child mortality audits show that almost a third of children who die are severely malnourished (Bamford, McKerrow, Barron, & Aung, 2018). Emerging evidence from rapid surveys from both Statistics South Africa and the HSRC have shown clear increases in rates of hunger among children and adults. Increases in acute malnutrition significantly raise the risk of children dying from pneumonia, diarrhoea and HIV/AIDS. These avoidable deaths need to be considered when deciding whether and how to lockdown South Africa, and whether schools should be closed again in future.

Mental health: School closures, lockdowns and increased financial stress are likely to have increased the risk of child abuse, mental health breakdowns and the emotional exhaustion of caregivers together with rising rates of depression and anxiety. Recent surveys of children in Nicaragua, Indonesia and a number of other countries have shown that children are at higher risk of lasting psychological distress, including depression (Radesky, 2020). After one month school closures in Hubei, nearly a quarter (23%) of children in Grades 2-6 reported symptoms of depression (Xie et al., 2020). Recent reviews of lockdowns, school closures and natural disasters show increases in rates of substance abuse, depression, fear, loneliness, domestic violence and child abuse (Galea et al., 2020; Soland et al., 2020).

Health and education: Children's routine immunisations, testing for HIV and TB, and health seeking behaviour when children seem sick are all likely to have decreased as a result of the lockdown and school closures. The NICD reports a 48% reduction in TB testing. Any delays in

the diagnosis and treatment of HIV in either pregnant mothers or new-born children is likely to have long term consequences. The education impacts of the lockdown and school closures are likely to be large and sustained. By the 7th of August 2020 at least 4 million children will have missed more than half (57%) of the number of school days that are normally scheduled up to this point. Teachers will not be able to complete the entire remaining curriculum in the limited time available. Inequality is likely to increase since poorer learners and schools are least able to catch up. International research on the cumulative effects of learning losses and subsequent income losses indicate that many of the losses in both learning and income are long term in nature and can be measured five years after the event (Das et al., 2020). As these authors conclude "the hidden paradox of disasters is that even if those who suffer today are the elderly, those who will pay throughout their lives will be the youngest" (Das et al., 2020).

Young children left home alone: One of the least appreciated costs of re-opening the economy while keeping schools closed for 90% of learners (as is currently the case in South Africa) is that children are at higher risk of being left home alone. Our analysis of the Quarterly Labour Force Survey (QLFS) data of 2019 shows that if all employed workers return to work, there would be more than 2-million children aged 0-15 years without an older sibling (15 years+) or an adult caregiver to look after them. Of highest concern are the almost one million children (974 000) below the age of six who have no other adult caregiver in the household except a working parent. It is highly plausible that hundreds of thousands of these children would be left home alone in households without an adult caretaker if their employed caregiver was forced to return to work to earn an income and sustain her family. Even though most sectors of the economy have re-opened, ECD centres or crèches remain closed.

Conclusion and recommendations:
After reviewing the evidence presented in this paper, it is our view that keeping children out of school is not in the best interests of the child. Consequently, all children should return to schools, crèches and ECD centres without any further delay. The profound costs borne by small children and families as a result of the ongoing nationwide lockdown and school closures will be felt for at least the next 10 years.

When the new coronavirus rapidly spread across the globe, the impact of the virus on children was still unclear, and closing schools from an abundance of caution seemed the responsible thing to do. But much has been learnt since about both COVID-19 and about the effects of lockdown and school closures, both in South Africa and internationally. Given the large social and economic costs of hard lockdowns and wholesale school closures we would strongly caution against future nation-wide lockdowns or school closures, even in the presence of a surge in COVID-19 infections. Policy-makers and government leaders have an obligation to weigh up the costs and collateral damage of their policies, particularly for those who are most vulnerable, such as small children, the elderly and those in poverty.

Millions of South African children's education and mental health have been compromised in this initial period of uncertainty. Given what is now known about the mortality rates of COVID-19, we believe that the ongoing disruptions to children's care, education and health are no longer justified.

1. Introduction

Like most countries around the world, South Africa has experienced disruptions of unprecedented proportions as a result of the novel coronavirus SARS-CoV-2 commonly referred to as COVID-19. Following the World Health Organisation's (WHO) declaration of COVID-19 as a global pandemic, South Africa acted swiftly and severely to limit the spread of this virus. On the 23th of March 2020 the President announced that South Africa would enter a state of almost complete lockdown three days later on the 26th of March. At the time there were 927 positive cases in the country and zero deaths.

What began as a three-week lockdown period morphed into an eight-week lockdown that is now in its ninth week and still on-going, albeit with fewer restrictions. The eight- week lockdown included bans of all public gatherings, closing all schools, and prohibiting all forms of physical commercial activity, except for the sale of food and medicine. The sale of alcohol and tobacco was banned. A national curfew was imposed prohibiting movement between 8pm and 5am. For the first time since apartheid the army was deployed across the country with the intention of maintaining law and order and supporting the police. This included 70 000 reserve soldiers who, at the time of writing, are still deployed across South Africa, largely in informal settlements. Even parliament was temporarily closed. Only the courts remained open out of fear that there would be no recourse to challenge government actions or to oppose the constitutionality of the measures being implemented.

By and large these containment measures were initially welcomed, or at the very least accepted, by the public, opposition parties and most scientific advisors. This is now to starting to change. There are now numerous legal challenges (the Helen Suzman Foundation, Democratic Alliance) and growing scientific opposition to the way the government is handling the crisis (Mendelsohn, Madhi, Nel & Venter, 2020; Van Bruwaene, Mustafa, Cloete, Goga and Green, 2020).

It is within this context that crèches and schools were also closed, and at the time of writing remain closed for 90% of children. For the ten weeks of lockdown up to the 8th of June, children were not allowed to go to school or see their friends and family outside of their house. During the first five weeks of 'hard' lockdown children were not allowed to leave their homes for any reason except to seek medical attention. Based on the government's current plans, by the end of Term 2 (7th of August 2020), South African children will have lost between 25% and 57% of the 'normal' school days scheduled up to that point (Table 1). The reason for the range is that school reopenings are staggered such that Grade 7 and 12 children miss only 25% of days up to 7 August, while their Grade 4, 5, 8 and 9 peers will miss 57% of scheduled school days up to 7 August 2020.

Table 1 on the following page reports the old and new school calendar based on amendments documented in Government Gazette No. 43381 (1 June 2020). Given that South Africa has not yet reached its expected peak in terms of infections, and may well lockdown again when it does reach the peak, it is unclear yet how long schools will remain open and whether they will close again when the peak does arrive. If schools close again, these trends are likely to be true for the entire academic year of 2020, and possibly the first half of 2021.

Table 1: School days lost due to school closures up to 7 August 2020 and in the 2020 calendar year (assuming no further closures)

School days lost up to 7 August 2020 by Grade				
	(New calendar) Current school days up to 7 Aug	(Old calendar) Pre-COVID scheduled school days up to 7 Aug	Days lost up to 7 Aug	School days lost as a percentage of pre-COVID scheduled school days up to 7 Aug 2020
Grades 7 &12	92	122	30	25%
ECD + Grades 1,2,3,6,10,11	72	122	50	41%
Gr 4,5,8,9	53	122	69	57%
School days lost in 2020 by Grade (assuming no further closures)				
	(New calendar) Current school days in proposed 2020 calendar	(Old calendar) Pre-COVID scheduled school days in 2020	Days lost up tin 2020 (assuming no further school closures)	School days lost in 2020 compared to pre-COVID scheduled school days in 2020
Grades 7 &12	175	204	29	14%
ECD + Grades 1,2,3,6,10,11	155	204	49	24%
Gr 4,5,8,9	136	204	68	33%

The aim of this paper is to provide empirical evidence on how COVID-19, lockdown(s) and school closure(s) affect children (<19 years). We provide evidence on the age distribution of teachers and map these onto COVID-19 risk categories (Section 2). The following section presents evidence on school infrastructure and class-sizes in South Africa which are relevant for considerations around hygiene and the feasibility of social distancing (Section 3). We then use household survey data to document the living situations of children and specifically how many children live with high-risk family members, and the employment status of their caregivers (Section 4). Subsequent sections deal with the impacts of the lockdown(s) and school closure(s) on children (malnutrition, depression, declining immunisations, indirect mortality from avoiding clinics, learning losses and the impacts on young children's cognitive) development, to which should be added income losses and increased inequality (Section 5). The penultimate section (Section 6) reports the number of children left "home alone" while the economy has re-opened and schools remain closed (i.e. those with no other care-givers except a working parent. Section 7 provides concluding comments and policy recommendations.

2. Children, teachers and COVID-19 risk

a. Age and COVID-19 risk in South Africa

One of the primary findings emerging from the medical research around COVID-19 is that age and COVID-19 mortality risk are strongly correlated. That is to say that the risk of severe illness or death from COVID-19 is heavily concentrated among the older cohorts of the population. Figure 1 below uses South African data from the Department of Health (as at 9 June 2020) and reports the distribution of COVID-19 mortality by age. It shows that 81% of people who died from COVID-19 in South Africa were 50 years or older, and that 58% were 60 years or older. This age distribution of deaths is somewhat 'younger' than those seen in most high-income countries. For example, in the United States 81% of people who died from COVID-19 were 65 years or older (CDC, 2020). See Our World In Data (2020) for case fatality rates by age for China, Italy, Spain and South Korea.

Figure 1: Distribution of COVID-19 deaths in South Africa by age category. Total deaths = 998 (Source: Department of Health, 9 June 2020)

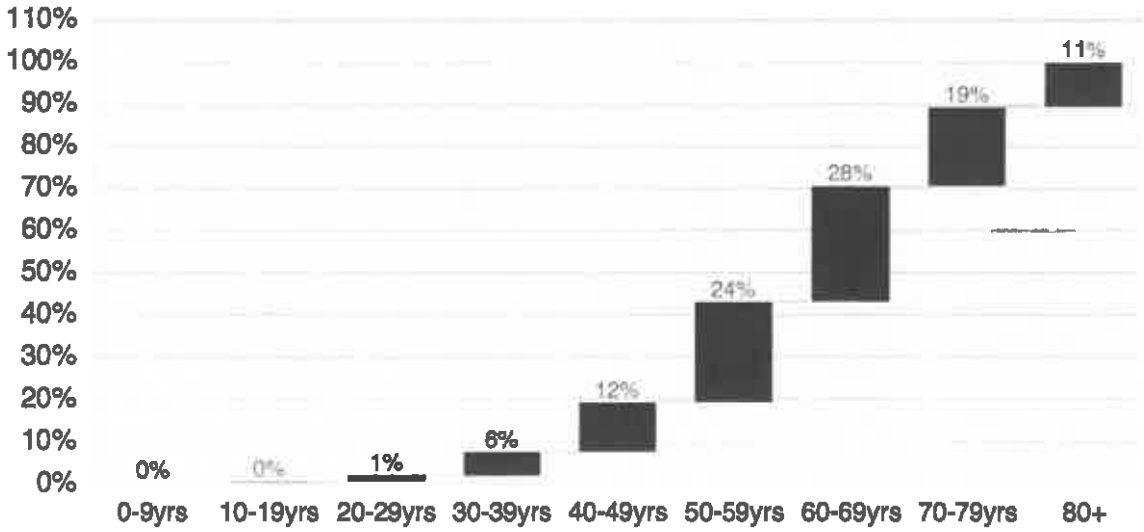


Table 2 below reports the case fatality rate (CFR) by age in China (China CDC, 2020: p.115) and compares this to the latest data available for the Western Cape (Western Cape Government, 2020). The CFR is the probability of dying if you are infected with COVID-19. The Western Cape was selected as the best proxy for South African risk by age since it has the highest number of infections (66% of the national total), the highest number of deaths (77% of the national total), as well as the highest rate of testing per 100 000 persons – at least as at the time of writing (NICD, 2020a: p.6). Apart from having the largest sample size on which to make conjectures, the province is also reporting testing and deaths by age group, which is necessary to calculate the CFR. If the age distribution of the 851 deaths in the Western Cape (as at 9 June 2020) is a reliable indicator of age and susceptibility to severe COVID-19 illness, it would seem that COVID-19 mortality risk starts increasing from those aged 50 and older in South Africa, rather than 60 and older as in China and most high-income countries. Note this is for those who are infected.

Table 2: Comparing COVID-19 Case Fatality Rates in China and the Western Cape by age

Age category	COV-19 Case Fatality Rate (CFR) in China	COV-19 Case Fatality Rate (CFR) in WC	WC Cases	WC deaths
0-9yrs	0.0%	0.2%	2 377	5
10-19yrs	0.2%			
20-29yrs	0.2%	0.3%	7 501	19
30-39yrs	0.2%	0.6%	9 345	55
40-49yrs	0.4%	1.5%	6 833	105
50-59yrs	1.3%	4.9%	4 488	218
60-69yrs	3.6%	12.7%	1 837	233
70-79yrs	8.0%	17.6%	780	137
80+yrs	14.8%	13.9%	569	79
Total	2.3%	2.5%	33 730	851
Source	China CDC (2020: p.115) based on 1023 deaths	WC COVID-19 Dashboard 10 June 2020, based on 851 deaths	WC COVID-19 Dashboard 10 June 2020	WC COVID-19 Dashboard 10 June 2020
Note:	Of those infected what percentage die (Deaths = 1023)	Of those infected what percentage die (WC deaths / WC Cases)		

This data from the Chinese CDC show that the average Chinese 55 year old had a 1.3% chance of dying of COVID-19 if they were infected, while the average South African 55 year old had a 4.9% chance of dying of COVID-19 if they were infected. These differences are likely due to contextual and demographic differences between South Africa and China. Due to higher rates of malnutrition, wider prevalence of tuberculosis and HIV, and lower access to healthcare, it is plausible that South Africa may have a higher CFR per age group, and indeed preliminary data from the Western Cape supports that hypothesis.

It is worth contextualising COVID-19 mortality risk relative to 'normal' mortality risk. That is to say that in a regular year people that are older also have a higher probability of dying from non-COVID-19 causes. Comparing COVID-19 mortality risk to 'normal' mortality risk is also helpful to put the relative risk of death in terms that are understandable. Table 3 below reports Statistics South Africa's mid-year population estimates for 2016 (StatsSA, 2016b: p.9) as well as deaths for the same year (StatsSA, 2018c: p.8) by age category. They show that a typical 45 year old in South Africa had a 1 in 100 chance of dying in 2016 from 'regular' (i.e. non-COVID-19) causes. It is clear that regular mortality risk is also strongly associated with age, as one would expect.

Given that South Africa has not yet experienced peak infections or deaths from COVID-19, in order to compare annual risk of death (from 2016) to COVID-19 risk of death in 2020, one needs to make assumptions about the total number of deaths from COVID-19 in 2020 in South Africa.

The Department of Health has consulted numerous modelling experts to predict the total number of infections and deaths from COVID-19 since this is important information needed for planning and preparation. Reviewing the projections put forward by the Actuarial Society of South Africa (ASA, 2020: p.4), the South African COVID-19 Modelling Consortium (SACMC) and Deloitte indicate that there may be as many as 40 000 deaths (optimistic) or 48 000 deaths (pessimistic) from COVID-19 by the end of 2020 (Davis, 2020; Child, 2020). These are also the current projections cited by the Minister of Health. Taking a conservative approach and using the higher projection of COVID-19 deaths in South Africa in 2020 (48 000), we use the distribution of deaths by age in the Western Cape (Column E) to apportion the 48 000 total deaths across the different age categories. For example, if the 48 000 deaths follow the Western Cape distribution of COVID-19 deaths then there will be 13 142 deaths among the 60-69 year age group.

This table allows one to ask "*What is the probability that someone in a particular age category is going to die from COVID-19 in 2020 in South Africa?*". It shows that for those under 70 the risk of death from COVID-19 is exceedingly small. For example the average 35 year old has a 1-in-2753 chance of dying of COVID-19 in 2020.

Table 3: Comparing risk of death in a regular year and risk of death from COVID-19 infection by age

Column	A	B	C	D	E	F	G	H	I
Age category	Population in 2016	Deaths in 2016	% died in 2016	Normal probability of dying is 1 in ___	WC distribution of COVID-19 deaths up to 10 June 2020	Projections: Projected SA Cov-19 deaths in 2020 if following WC pattern	Projections: Probability of dying of COVID-19 in 2020 in SA	Projections: Probability of dying of COVID-19 in 2020 in SA	COVID-19 risk categorization relative to regular mortality risk
0-9yrs	11 624 007	9 974	0.1%	1 in 1 000 chance	5	282	0.001%	1 in 76 878 chance	Practically non-existent
10-19yrs	10 057 108	9 904	0.1%	1 in 1 000 chance					
20-29yrs	10 822 615	35 917	0.3%	1 in 333 chance	19	1 072	0.010%	1 in 10 099 chance	Very Low
30-39yrs	8 540 322	56 763	0.7%	1 in 143 chance	55	3 102	0.036%	1 in 2 753 chance	
40-49yrs	6 085 366	57 925	1.0%	1 in 100 chance	105	5 922	0.097%	1 in 1 028 chance	
50-59yrs	4 302 071	65 535	1.5%	1 in 67 chance	218	12 296	0.286%	1 in 350 chance	
60-69yrs	2 739 297	72 056	2.6%	1 in 39 chance	233	13 142	0.480%	1 in 208 chance	Low
70-79yrs	1 320 831	63 628	4.8%	1 in 21 chance	137	7 727	0.585%	1 in 171 chance	Moderate
80+yrs	417 248	63 549	15.2%	1 in 7 chance	79	4 456	1.068%	1 in 94 chance	High
Total	55 908 865	435 251	0.8%	1 in 129 chance	851	48 000	0.086%	1 in 1 165 chance	Low
Source	(StatsSA, 2016: p.9)	(StatsSA, 2018c: p.8). Infant deaths (age 0 years; 20 649) are excluded so as to make these figures comparable to the Population estimates in Column A	Calculated as B/A	Calculated as 100/C	WC COVID-19 Dashboard 10 June 2020	Apportioning ASA, SAMRC & Deloitte 2020 total projected deaths conservative estimate (48 000) across age distribution	Calculated as F/A	Column G reported as chance (1/G)	Comparing column H and column D

While it is true that these projections depend on the assumption of 48 000 COVID-19 deaths in South Africa in 2020, there are very few specialists who believe that the figure will be higher than this. Furthermore, even if COVID-19 deaths were twice as large as predicted here (96 000) (which would halve the chance numbers in Column H), the risk of death from regular causes for all age groups would still drastically outweigh the risk of death from COVID-19 multiple times over. It is for this reason that the risk categorization in Column I, which reports the relative risk of COVID-19 mortality and regular mortality, indicates that for the population at large under 70 years of age, the risk of death from COVID-19 is low or very low when compared to regular mortality risk. Put differently, people should be far more worried about dying of regular causes than from COVID-19. This does not, however, indicate that sensible precautions such as social distancing or wearing a mask should be ignored.

The above discussion has important implications for school closures, since these measures are justified partly on the basis that they will prevent the healthcare system becoming overwhelmed, but also because of the excess mortality risk to teachers. For example, schools were scheduled to be opened for some grades on the 1st of June 2020, but this was delayed based on teacher union opposition that schools were not adequately prepared to protect learners and teachers. Yet if the assumptions underlying the above data are correct, the additional mortality risk to teachers and caregivers up to age 70 is low relative to the normal mortality risk that they face. For children the risk is exceedingly small. Following analysis of COVID-19 mortality data in the United Kingdom by Professor David Spiegelhalter at Cambridge University, he concluded that "In school kids aged five to 15 it's not only a tiny risk, it's a tiny proportion of the normal risk." He went on to say that the risk was so low that children were more likely to get struck by lightning (a chance of one in 1.7-million) than die of COVID-19 (one in 3.5-million) (Spiegelhalter, 2020).

The evidence emerging from South Africa on children's COVID-19 risk of severe illness is completely congruent with international research showing that children do not get severely ill from COVID-19. There are so few recorded deaths of children from COVID-19 that it is difficult to draw any conclusions (see Spaull, 2020 for an overview of the epidemiological research on this). The South African Paediatric Association (SAPA) in their statement on COVID-19 (SAPA, 2020) explain that "Children biologically contain SARS-CoV-2 better than adults, are less likely to get sick if infected, have milder disease, are unlikely to die from COVID-19, and are probably less infectious than adults."

b. The age distribution of learners and teachers in South Africa

Although it is clear that the additional mortality risk posed by COVID-19 is small relative to regular mortality risk, it is nevertheless true that this additional risk is related to age. Therefore we report the age distributions of both learners and teachers in South Africa with the aim of identifying the number and percentage of teachers in higher risk age categories. To do so we use data from the Education Management Information System for learner age (EMIS, 2013) and government payroll data for teacher age (PERSAL, own 2020 projections based on 2017 data).

For learners we report the age range of the 10th to the 90th percentile per grade, while for teachers we order the distribution by age from youngest to oldest and create ten equal deciles of age (Figure 2 and Table 4). For example, in Grade 12 there are 10% of learners who are younger than 17 (10th percentile) and 90% of learners who are under the age of 21 (90th percentile). Given that those under the age of 60 are at low risk of severe illness and death from COVID-19, of most interest for the present purposes is the finding that 10% of teachers are aged 58 to 65 years old (10th decile). There are approximately 380 000 teachers in the system, so approximately 38 000 are aged 58-65 years (see also Figure 3 on the next page).

Figure 2: The distribution of learner age range (10th-90th percentile) by grade (EMIS), and teacher age by decile (PERSAL) in South Africa

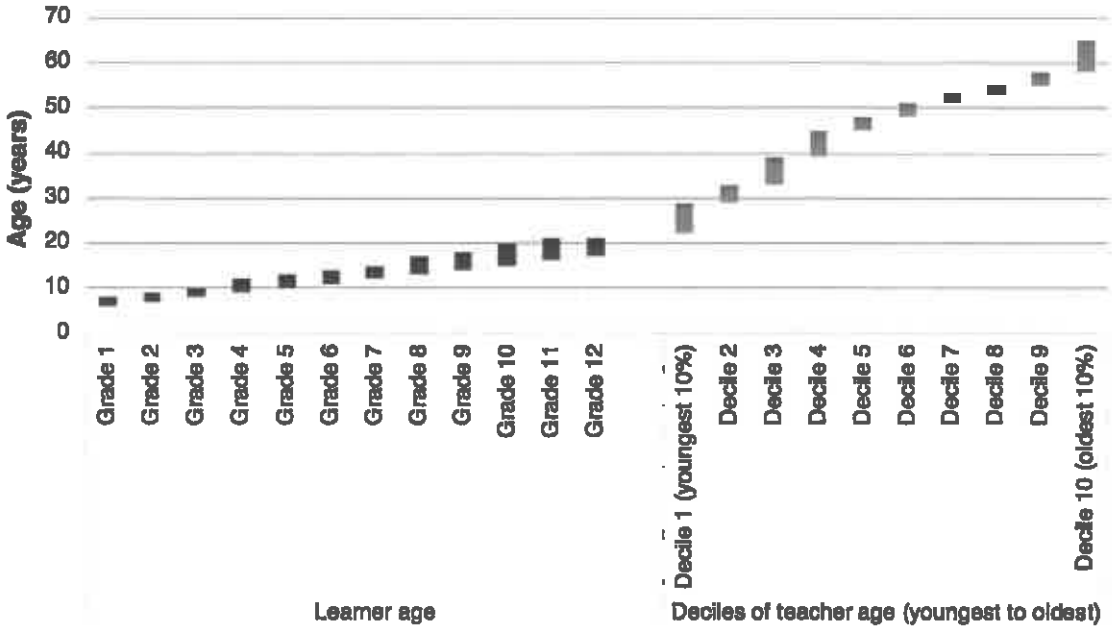
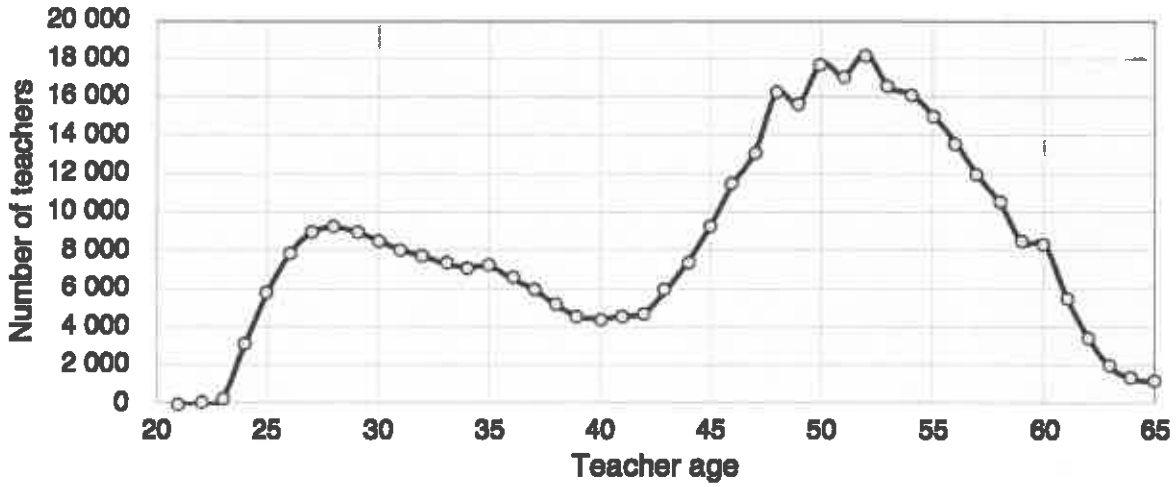


Table 4: The distribution of learner age range (10th-90th percentile) by grade, and teacher age by decile in South Africa

Distribution of learner age in years (EMIS)				Distribution of teacher age in years (PERSAL)			
		10 percentile	90th percentile			Youngest	Oldest
Learner age by grade	Grade 1	6	8	Deciles of teacher age (youngest to oldest)	Decile 1 (youngest 10%)	22	29
	Grade 2	7	9		Decile 2	29	33
	Grade 3	8	10		Decile 3	33	39
	Grade 4	9	12		Decile 4	39	45
	Grade 5	10	13		Decile 5	45	48
	Grade 6	11	14		Decile 6	48	51
	Grade 7	12	15		Decile 7	51	53
	Grade 8	13	17		Decile 8	53	55
	Grade 9	14	18		Decile 9	55	58
	Grade 10	15	20		Decile 10 (oldest 10%)	58	65
	Grade 11	16	21				
	Grade 12	17	21				

Figure 3: Projected teacher age in South Africa, 2020 (PERSAL)



c. What percentage of teachers have co-morbidities?

In addition to age, international research has shown that individuals with certain co-morbidities are at higher risk of COVID-19 mortality. The World Health Organisation (WHO) reports that "evidence to date suggests that two groups of people are at a higher risk of getting severe COVID-19 disease. These are older people (that is people over 60 years old); and those with underlying medical conditions (such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer)" (WHO, 2020: p.2).

There is currently no nationally-representative data on the comorbidities of teachers specifically. However, nationally 4 581 200 South Africans aged 20-79 are estimated to have diabetes, according to the International Diabetes Federation (2019). Applying the ratio of teachers to the national population in this age group, there could be perhaps around 47 500 teachers who have diabetes, or one in every eight teachers. Cardiovascular disease is a major source of mortality in South Africa, often associated with hypertension. These diseases increase an individual's COVID-19 mortality risk. However, it should be noted that the mortality total provided in Table 3 is a national figure and already includes deaths associated with these and other comorbidities.

3. School infrastructure, class sizes and social distancing in South Africa

While there are numerous ways to limit the spread of COVID-19, the two preventative measures that receive the most attention are (1) washing hands with soap and water or alcohol-based sanitizer, and (2) practicing social distancing. At the most elementary level the former requires soap and water and the latter requires space. To what extent are these available in South African schools? In the section below we look at data from the School Monitoring Survey (SMS) of 2017 to report what percentage of primary schools and high schools in South Africa have access to running water, and what is the distribution of class sizes in the country.

a. *Access to running water*

The SMS data show that nationally 74% of primary schools and 80% of secondary schools report

access to running water in 2017 (DBE, 2018: p.80). However, there is considerable provincial variation in access to this most basic resource. Lack of access to running water is especially acute in KwaZulu-Natal, where only 53% of primary schools and 59% of secondary schools report access. In contrast, approximately 95% of primary schools and high schools in Gauteng and the Western Cape have running water (DBE, 2018: p.81). Without access to running water, how are children and teachers expected to wash their hands? Thus special measures had to be instituted. COVID-19 is an opportunity for South Africans to reflect and acknowledge that in 25 years of democracy we have not managed to provide all schools with basic infrastructure like running water, electricity, and safe toilet facilities [1]. The fact that a quarter of primary schools do not have access to running water in a middle-income country like South Africa is an indictment and an ongoing source of shame. While this is clearly a pre-requisite for basic hygiene during a pandemic, it is also a pre-requisite for basic dignity in everyday life.

Due to teacher union opposition about returning to schools where there is no running water and therefore limited ability to practice personal hygiene, the Department of Basic Education went into overdrive to provide schools with water tanks so that teachers would return. On the 7th of June the Minister announced that 95% of schools now had running water (Motshekga, 2020). This was accomplished through a contract with Rand Water to provide water tanks to 3500 schools:

> "The support provided by the Department of Water and Sanitation, Rand Water, the Department of Health, National Treasury; and the recent involvement of the South African National Defence, the Development Bank of Southern Africa (DBSA), the Department of Transport, and Mvula Trust is second to none. Their involvement has accelerated our interventions in the provinces, especially the reach to the most rural and remote schools" (Motshekga, 2020).

This is a commendable achievement, and may yet be one of the few positive outcomes of the pandemic. It is truly remarkable that in the space of six weeks the Department of Basic Education has managed to do what it was unable to do in the last 20 years.

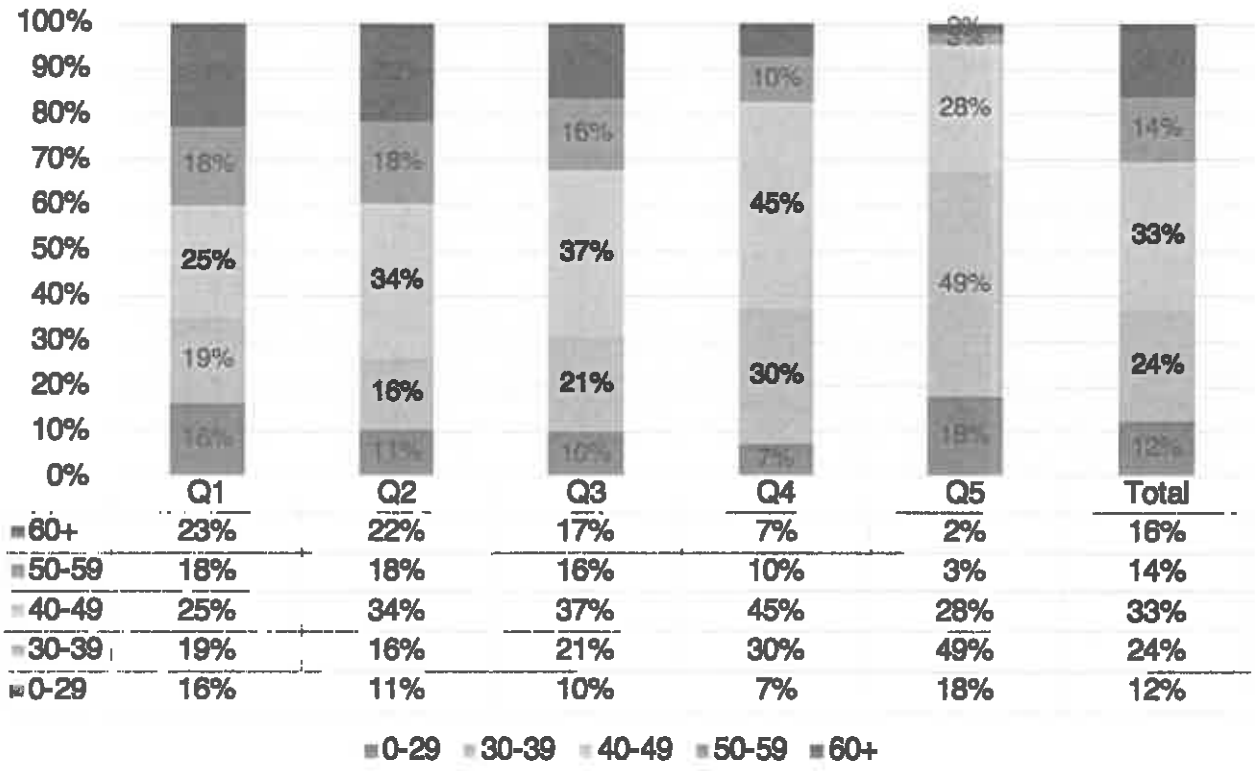
b. Class sizes and the feasibility of social distancing

In addition to information on school infrastructure, the School Monitoring Survey also asked teachers about the class size of the largest class [2] that they taught. This was asked of teachers in Grades 3, 6, 9 and 12. The two graphs below report the distribution of class sizes in South African primary schools (Figure 4) and high schools (Figure 5) split by quintiles of school wealth (Q1 is poorest, Q5 is richest). They show that nationally 63% of primary school children are in classes of 40 or more learners per class, with 16% in classes of 60 or more per class. In secondary schools 70% of learners are in classes of 40 or more learners per class and 26% are in classes of 60 or more learners per class. Appendix A reports the same figures separated by province. Appendix B provides corroborating evidence on class sizes from TIMSS, PIRLS and SACMEQ.

[1] The SMS data show that nationally 12% of primary schools and 6% of high schools do not have electricity, while 21% of primary schools and 16% of high schools do not have adequate toilets (DBE, 2020: p.80). Provinces with the greatest needs are Limpopo, KwaZulu-Natal, the Eastern Cape and the Free State. Note that the SMS sample is nationally representative and includes 1000 primary schools and 1000 secondary schools (DBE, 2018: p.11).

[2] It is only in Grade 3 that we also have the observed class sizes in SMS (not Grades 6, 9 and 12), in addition to the question on largest class taught. However, it is reassuring to note that the observed and self-reported class sizes are not very dissimilar. Thanks to Tim Kohler for help with this.

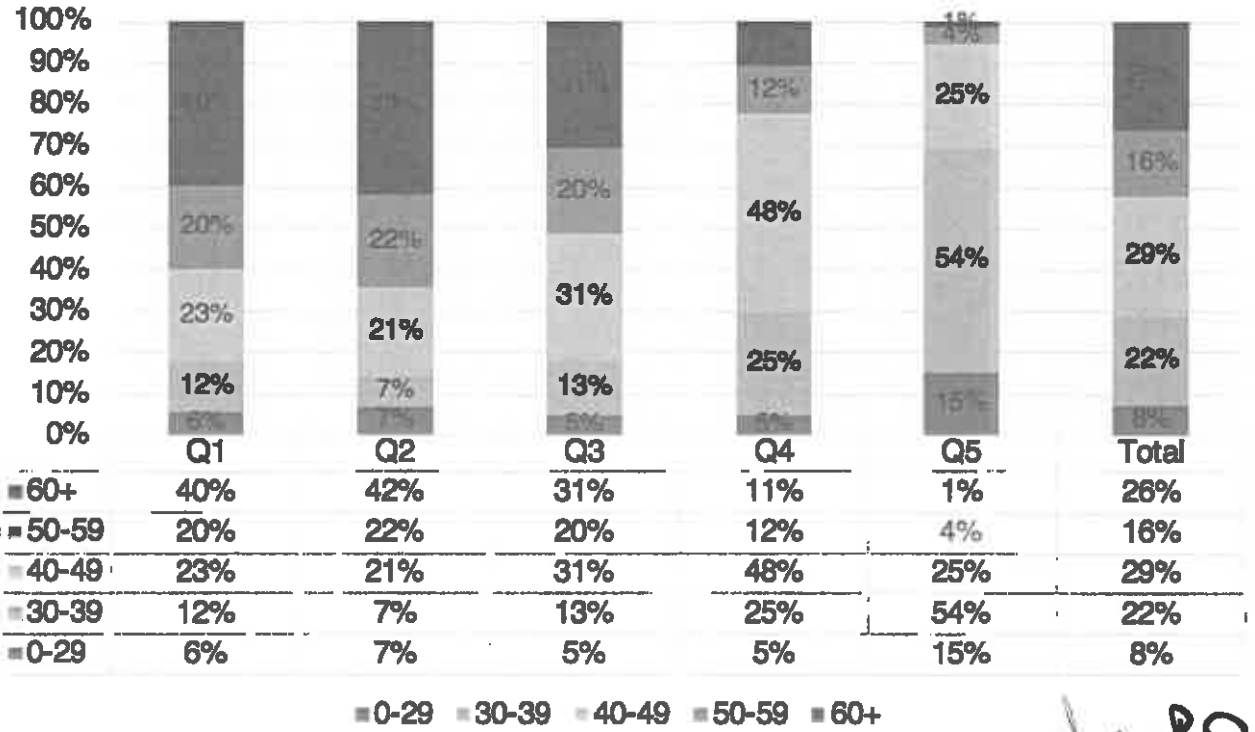
Figure 4: Distribution of largest class taught by Grade 3 and 6 teachers in South African primary schools by school wealth quintile (School Monitoring Survey 2017, own calculations)



	Q1	Q2	Q3	Q4	Q5	Total
60+	23%	22%	17%	7%	2%	16%
50-59	18%	18%	16%	10%	3%	14%
40-49	25%	34%	37%	45%	28%	33%
30-39	19%	16%	21%	30%	49%	24%
0-29	16%	11%	10%	7%	18%	12%

0-29 30-39 40-49 50-59 60+

Figure 5: Distribution of largest class taught by Grade 6 and 9 teachers in South African secondary schools by school wealth quintile (School Monitoring Survey 2017, own calculations)



	Q1	Q2	Q3	Q4	Q5	Total
60+	40%	42%	31%	11%	1%	26%
50-59	20%	22%	20%	12%	4%	16%
40-49	23%	21%	31%	48%	25%	29%
30-39	12%	7%	13%	25%	54%	22%
0-29	6%	7%	5%	5%	15%	8%

0-29 30-39 40-49 50-59 60+

The Department of Basic Education's draft "National Minimum Norms and Standards for School Infrastructure" document reports architectural norms that must be followed when building classrooms. Page 91 of those norms state that the maximum class size that should be considered is 40 learners per class (SA Government, 2008: p.91). As a result virtually all South African classrooms are built to accommodate 40 learners. The norms further specify sitting spaces of 1.2 to 1.5 square metres for each child (p.91). If a class had 40 learners in it, then social distancing within the classroom in accordance with the WHO guidelines (WHO, 2020) would be possible.

Reviewing the data on class sizes in South Africa (Figures 4 and 5) in conjunction with government regulations and the spatial realities of South African classrooms, it is clear that at least half of South African learners will not be able to practice social distancing within a classroom. Furthermore, teaching outdoors is problematic, since South Africa is now in the winter season. This is apart from the fact that teaching 50+ learners in an open space is practically very difficult even without weather considerations.

Given that COVID-19 mortality risk is very low compared to regular mortality risk (Table 3), and virtually non-existent for children, we believe the Department of Basic Education should acknowledge that it is not feasible for most South African schools to practice social distancing within the classroom. While it should require mask-wearing for older children and social distancing on the playground, social distancing within the classroom is simply not realistic. Attempts to do so are futile in our context and are likely to further disrupt teaching and learning, to the detriment of children.

4. Household living situations

Thanks to Statistics South Africa and other surveys and an active research community, we know a lot about the often dismal social and economic conditions that many children still find themselves in today. We know that poverty has declined since the political transition, and so has one of its worst manifestations, child hunger – but they have not been eliminated. According to the Community Survey of 2016, exactly one-third of children were still in households that had an income below the food poverty line, where not even minimum food needs can be met, and just over two-thirds (67%) were below the higher, but still frugal, upper-based poverty line, the level of income required to meet most basic needs (Statistics South Africa, 2016). Thanks to the expansion of the Child Support Grant, these child poverty rates have been declining over a large part of the post-transition period, but even in 2018, parents indicated that 2½ million children (13% of children) sometimes go hungry. As Table 5 shows, this ratio was as high as 21% in the North West province, before the economic effects of COVID-19 and the lockdown were felt. Anthropometric indicators of nutritional status in the Demographic and Health Survey (DHS) indicate that stunting (low height for age, an indicator of long term nutrition and health status), was still prevalent in 27% of children under 5 in 2016. Wasting (low weight for height), a measure of shorter term nutritional adequacy, was less common at less than 3% (National Department of Health et al, 2019). In the context of COVID-19 it is especially concerning that school closures and the lockdown are likely to have significantly exacerbated child hunger. Both because of job and income losses, but also because children are not receiving free school meals. In 2018, 77% of children in public schools, approximately 9-million children, received a school meal every school day (Statistics South Africa, 2019a). This is an important source of food that would have fallen away during the lockdown and continues for those who are not yet allowed to go back to school. Even though malnutrition is not often stated as the cause of death in South Africa, it often remains an important contributor. Child mortality audits show that almost a third of children who die are severely malnourished. (Bamford, McKerrow, Barron, & Aung, 2018)

Table 5: Children who live in households with no employed adults, who experience hunger, or who live in areas where crime prevents them from using parks, 2018

	Child population 2018 ('000)	Children living in house-holds with-out an employed adult	Children experiencing hunger ('000)	Children experiencing hunger (%)	Children in public schools who benefit from school feeding (%)	Areas where fear of crime prevent children from going to parks
Western Cape	1 971	8%	288	15%	54%	47%
Eastern Cape	2 514	46%	212	9%	90%	38%
Northern Cape	436	29%	73	17%	83%	57%
Free State	1 021	35%	131	13%	80%	35%
Kwazulu-Natal	4 184	36%	826	20%	84%	28%
Northwest	1 382	35%	284	21%	80%	21%
Gauteng	4 186	15%	345	8%	55%	46%
Mpumalanga	1 673	29%	222	13%	88%	39%
Limpopo	2 374	41%	118	5%	91%	15%
Total	**19 741**	**30%**	**2 500**	**13%**	**77%**	**35%**

Sources: Statistics South Africa, 2019a; Statistics South Africa, 2018a; Hall, 2019; Statistics Sount Africa, 2019c

Households: It is perhaps helpful to provide some context as to the types of households that children find themselves in. Altogether 62% of South African children, and three-quarters of those in rural areas, live in extended families. Less than one-third of children live in households where both parents are present, and almost 42% live in households where the mother is the only parent present (Statistics South Africa, 2019). Only 13% of children are in households with medical aid, 32% live in households without potable water, and almost 20% in homes without sanitation (Statistics South Africa, 2018a).

Stimulation: Although almost half (49%) of children aged 0 to 4 stay at home with parents or guardians, research shows a worrying lack of stimulation for many children. Only 53% of parents or guardians report reading books with children, 57% report colouring or drawing with them, and 65% report telling stories (Statistics South Africa, 2019a). For those without these forms of stimulation at home, the lockdown experience is likely to be dire. In addition there have been further limitations placed on these children, given that they could not play outside or see their same-age peers.

Child abuse: In 2016, the extensive Optimus study was undertaken on child abuse in South Africa. The researchers found that "one in every three young people had experienced some form of sexual abuse at some point in their lives" (Artz, et al., 2016: p.11). Other forms of child abuse were also investigated; among children aged 15-17, they found that 42% had experienced some form of maltreatment (sexual, physical, emotional or neglect), and 82% reported that they had experienced criminal victimisation or exposure to family or community violence (Artz, et al., 2016). The authors recognize that many parents and caregivers lack the financial and emotional support needed to nurture children, and that caregivers struggling with poverty and adversity were more likely to be perpetrators of violence. Pelton (2015) also identifies poverty as one of the risk factors for child maltreatment, together with sleeping density – the number of people a child shares a room with at night (Richter, Dawes & Higson-Smith, 2004).

5. Impacts of the lockdown(s) and school closure(s) on children

a. Learning loss

Existing research in South Africa shows that children in weaker schools fall increasingly below a threshold of required achievement (Van der Berg, 2015; Spaull & Kotze, 2015). The learning deficits resulting from COVID-19 are likely to further exacerbate this problem and widen overall inequality in South Africa. Furthermore, with an ever-dwindling number of school days left in the year, teachers will be increasingly under pressure to cover an already "full" curriculum in a fraction of the time. An emerging body of research shows the detrimental effects of a disconnect between curricular expectations and the level of the child (Pritchett & Beatty, 2013: Banerjee & Duflo, 2011). In the South African context, how much can teachers adjust the level at which they teach to the new reality of children who have missed 29-68 out of 204 days of the school year? How much of the curriculum can be excluded in any one grade without affecting children's readiness for the subsequent grades and the expectations of further study?

Using assessment data from 5 million American students in Grades 3 to 8 and extrapolating from that based on learning losses during school holidays or absenteeism from school, Soland, et al. (2020) estimate that COVID-19 may result in around 30% of a year's learning in reading and more than 50% in mathematics in the U.S. Younger children may lose almost a full year of mathematics learning. Moreover, a long lockdown will increase heterogeneity in classes when schools reopen, which would raise the challenges for teachers, especially in mathematics. (Soland, et al., 2020). All of these estimates are likely to be drastic underestimates when applied to South Africa, due to the low levels of educational materials at home, the lack of educational technology like computers and the internet and the inability of most South African teachers to continue teaching while children are not at school. Realistically, for the poorest 80% of learners in South Africa, virtually no curricular learning is taking place during lockdown.

Apart from the fact that parents and caregivers are not trained or equipped to teach their own children, the existing lockdown 'plans' for learning have not significantly mitigated the losses in learning for children that do not have proper technology-enabled learning at home. At most, 5-10% of learners can continue learning at home given their access to computers and the internet. Data from the Trends in International Mathematics and Science Study (TIMSS 2015, Grade 9) shows that for no-fee schools (the poorest 75%), less than half of children in a given class have a computer with internet access. Only in the wealthiest 5% of schools do at least 90% of learners have access to a computer and the internet at home (Gustafsson 2020).

The DBE's partnership with the South African Broadcasting Corporation (SABC) to provide "COVID-19 Learner Support" via television and radio (DBE, 2020b), while admirable, is not a replacement for school. It targets only "Grade 10-12 and ECD" and is only available for 1.5 hours per day across three television channels. Given that these programs would need to be subject- and grade-specific for students to continue with curricular work, this still amounts to less than 5% of the 'instruction' time learners would be receiving if they were in school, assuming they watch all the programs dedicated to their grade. It is also not clear what children in Grades R-9 are meant to do.

Access to computers and the internet in South African homes is very low. The General Household Survey of 2018 shows that only 22% of households have a computer in them (StatsSA 2019a, p. 63) and only 10% of respondents have an internet connection in their home (p.57). While it is true that 90%+ of South African households report access to a mobile phone (p.56), only

60% report access to the internet via their mobile phone. It should further be emphasised that these rates are for adults in the household. One cannot assume that during lockdown, children in a household would have exclusive or unlimited access to the cell phone to access educational content. There is also the issue of multiple children in the same household needing to share a mobile phone, and the high cost of data, although there are now some free educational sites (Duncan-Williams 2020).

b. Economic effects, nutrition and immunisations

The lockdown and school closures have had severe economic effects for many households, especially households where the informal sector contributes a large part of household income, or where people have lost jobs or income because of the lockdown. Government social relief for the unemployed has not been very effective, due to the difficulties of setting up new payment systems and procedures, and problems in dealing with the application process and documentation. Social relief through increased social grants was much more successful, despite some hurdles in implementation (for example in the Western Cape, where social pensioners received pensions twice in one month). Thus children in the 20% of households whose main income source is social grants may have been better off since the lockdown began, but it is not so clear that this would also be true for the other 24% of households where social grants are only one of the main income sources (Statistics South Africa 2019a).

It will take some time before we will know how the gains from social relief match up against the effect of job and income losses in these households. The South African Reserve Bank and the International Monetary Fund (IMF) estimate that the South African economy will contract by 6% in 2020 (National Treasury, 2020a: p.5), while a social accounting model by Arndt et al. (2020) point to a much bigger economic decline, perhaps as much as 16% without consideration of government social relief efforts. It is worth noting that labour market income makes up more than 70% of total household income and that grant income has never been more than 7% of total household income in South Africa (StatsSA, 2019b: p.41). Given the relative proportions of government grants to total market income, the additional relief in government grants can unfortunately never outweigh the loss in income from job losses and income shocks. To place the R500-billion government relief package in further context, the 'pre-COVID-19' 2020 budget had allocated approximately R276-billion to government grants and social security (UIF) (National Treasury, 2020b). Therefore, the total amount of government social assistance is likely to be three times higher in 2020 than it would normally be.

Since the widespread lockdowns in response to COVID-19, there has been increasing evidence of disruptions to routine childhood immunisation services globally, with more than 68 countries reporting moderate to severe or even total suspension of such services. This may affect provision of vaccines against measles, polio and cholera to around 80 million children under one year globally. Delays in vaccine deliveries, fears of visiting health facilities and pressure on health workers all contribute (WHO, 2020). This is in line with a systematic review of articles on the indirect health effects of the Ebola virus outbreak in West Africa that showed substantial short and long term effects on health services, including declines in caesarean sections and facility-based deliveries and in utilisation of antenatal, postnatal, family planning and children's health services (Brolin Ribacke, Saulnier, Eriksson, & Von Schreeb, 2016).

In South Africa, too, some members of the medical community have tried to highlight the effect of the focus on COVID-19 on other health services. The public's fear of contracting the coronavirus may have led to children not being immunised, pregnant mothers avoiding antenatal care appointments and many patients with chronic comorbidities not presenting for treatment or not collecting needed medications ('Greater crisis' looms: 38 doctors plea for non-

COVID health care resources, 2020). Among children under five years of age, three conditions make up 50-60% of non-neonatal deaths: pneumonia, diarrhoea and HIV/AIDS (Nannan et al., 2019: p. 482). All three of these require prompt medical services to avoid severe illness and deaths. Given the very low mortality of COVID-19 among children, it is extremely probable that excess and avoidable deaths from these three illnesses will outweigh COVID-19 deaths among children.

Of particular concern in South Africa is the high prevalence of HIV and Tuberculosis. Any decline in the rates of testing and treatment of these pernicious diseases is likely to have significant long-term consequences. Already the National Institute of Communicable Diseases (NICD) has reported that "The COVID-19 level 5 restrictions have resulted in an approximately 48% average weekly decrease in TB Xpert testing volumes" (NICD, 2020b: p.6).

Statement from the Desmond Tutu TB Centre

At the Desmond Tutu TB Centre, as advocates for children affected by TB and by HIV, we urge that the limited risk that COVID-19 infection poses on children be balanced against the substantial risks posed by other leading causes of childhood morbidity and mortality in South Africa, including TB and HIV.

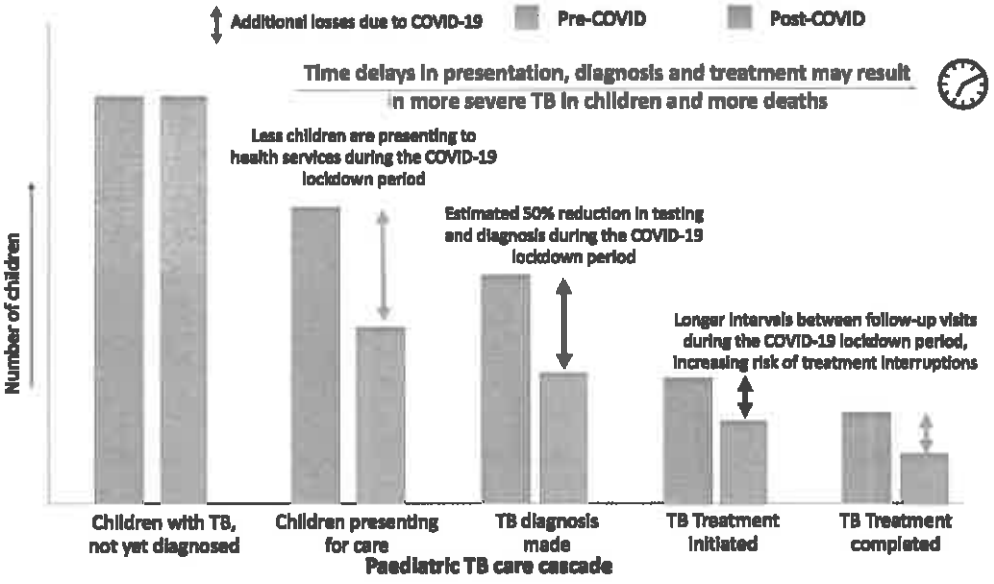
Tuberculosis (TB) and HIV and South African children
TB is one of the top 10 causes of deaths in children globally with most children developing pulmonary TB (TB of the lungs). Each year in South African approximately 17 500 children under the age of 15 are treated for TB. However, this is likely only two thirds of the actual TB burden in children due to missed diagnosis and underreporting of cases. There are also about 300 000 children under the age of 15 who are living with HIV in South Africa. Diagnosing and treating TB and HIV in children relies on a functional and accessible health system, and if TB in children is diagnosed early and appropriate treatment is started, treatment outcomes are excellent with close to 95% treatment success for most forms of disease. If the diagnosis of TB in a child is delayed by several weeks, the child may die or develop more severe TB disease (such as TB meningitis), and subsequently suffer long-term morbidity. Interruptions to TB treatment, where less than 80% of doses are taken, are associated with worse TB treatment outcomes and also risk of development of drug-resistant TB, which is more difficult to treat and requires longer treatment. If a child has been exposed to TB, preventive therapy dramatically reduces their risk of developing TB disease.

Lockdown can impact on TB and HIV services for children at multiple levels
Delays to a TB diagnosis in adults may lead to more household transmission of Mycobacterium tuberculosis, the organisms causing TB, and possibly more children infected with TB. During lockdown in South Africa, overall TB testing has declined by 50% at a national level, which will result in fewer children being diagnosed and started on TB treatment. Fewer children with TB disease are being brought for evaluation and diagnosis to health services which means that the diagnosis of TB or other diseases is not being made and that children are not started on treatment. Children brought to health services are less likely to be correctly diagnosed with TB due to COVID focussed care, e.g. fewer children are getting chest x-rays or are having sputum taken.

Children with HIV are also less likely to be diagnosed with TB in the current context, and if on antiretroviral therapy, are less likely to be supported in taking their treatment by healthcare services. If antiretroviral therapy requires modification for TB treatment, this may be harder to do and could lead to antiretroviral resistance. Children with TB are less likely to be supported by healthcare in completing their TB treatment, for all forms of TB. There is currently limited TB contact tracing of at-risk close TB contacts like children and HIV-positive people, leading to a decrease in starting much-needed TB preventative treatment for children.

Figure 6 below shows the TB care cascade for children with TB, entering care, being tested and diagnosed and started on TB treatment to treatment completion. Before the COVID-19 pandemic there were already substantial losses in every step of this care cascade in South Africa (e.g. children not presenting to care, not being diagnosed or no treatment being initiated and children not being reported). During the COVID-19 pandemic, substantial additional losses are expected due to direct and indirect effects of COVID-19 on children's access to health services in the public sector.

Figure 6: The TB care cascade for children with TB, entering care, being tested and diagnosed and started on TB treatment to treatment completion.



c. Mental health

Large-scale disasters, such as terrorist attacks, mass shootings or natural disasters "...are almost always accompanied by increases in depression, posttraumatic stress disorder (PTSD), substance use disorder, a broad range of other mental and behavioural disorders, domestic violence, and child abuse" (Galea, Merchant, & Lurie, 2020). This was also the case with the SARS epidemic in the countries that it affected. It is therefore quite likely that following the pandemic there will be increases in anxiety and depression, substance abuse, loneliness, domestic violence and child abuse (Soland, et al., 2020).

A recent study of 1784 children in Grades 2 to 6 in Huebei Provine in China when schools had been closed as a result of the pandemic for over a month found that 23% reported depression symptoms and 19% had anxiety symptoms (Xie et al., 2020). Depression was more common amongst children who were worried about being affected by the virus.

Recent surveys by Save the Children in the United States, Spain, UK, Finland, Germany, Nicaragua and Indonesia led them to conclude that almost one-quarter of children affected by lockdowns and school closures have feelings of anxiety, and that many are at risk of lasting psychological distress, including depression (Radesky, 2020). Similarly, Lee (2020) argues that "School routines are important coping mechanisms for young people with mental health issues. When schools are closed, they lose an anchor in life and their symptoms could relapse."

Drawing from other situations, such as the effect of Hurricane Katrina, Soland, et al. (2020) note that children may face greater food insecurity, loss of family income, loss of family members to the virus, and fear of being infected themselves. The return to school may therefore not be easy for all children. Some would have trouble concentrating and would manifest symptoms of depression and acute anxiety. It is essential to try to understand these impacts and support children's social and emotional needs after the disruption of the pandemic and the lockdown.

An especially pertinent recent systematic review on the psychological impact of quarantine-type situations has found that it led to high levels of post-traumatic stress (29% to 34%) and fear (20%), while also increasing depression, low mood, irritability, insomnia, anger and emotional exhaustion (Fegert, Vitiello, Plener, & Clemens, 2020).

Increased financial stress during economic recessions is also associated with increases in domestic violence. The added complications of the lockdown and permanent presence of children in the home increases the likelihood of children falling victim to such behaviour. As Fegert, Vitiello, Plener, & Clemens (2020) state,

> "... [the lockdown phases] of the current COVID-19 pandemic represent a dangerous accumulation of risk factors for mental health problems in children and adolescents of enormous proportions: re-organization of family life, massive stress, fear of death of relatives, especially with relation to grandparents and great-grandparents, economic crisis with simultaneous loss of almost all support systems and opportunities for evasion in everyday life, limited access to health services as well as a lack of social stabilization and control from peer groups, teachers at school, and sport activities."

The Human Sciences Research Council (HSRC) and a University of Johannesburg team analysed the mental health consequences of the lockdown for adults in South Africa, based on an online survey. They derived two latent variables from the responses they obtained about the emotions people felt. The one they termed psychological distress (including stress, being scared, irritability, feeling depressed, sadness, anger) and the other isolation (boredom and loneliness). Further investigation found that the components of psychological distress are higher among individuals that reported feeling hunger. The strong presence of this emotion in the contexts of hunger, and its association with psychological distress, is something that children are also likely to experience (Orkin et al., 2020).

6. Home Alone: The extent to which children are left home alone when caregivers return to work and schools remain closed.

Reviewing the South African media discourse on the 'post-lockdown' regulations, one of the areas that has been most neglected are the unintended consequences of re-opening the economy while schools and crèches remain closed for most children.

Using data from the Quarterly Labour Force Survey (QLFS) of StatsSA for the fourth quarter of 2019, it is possible to determine how many schoolchildren, pre-schoolers and toddlers would be at home with or without an adult caretaker, if everyone who had jobs at the end of 2019 were again to return to work. The table shows that 3.3 million children (18% of all children in this age group) were in households were there was no additional adult care-giver apart from employed adults. In the remaining 82% of households there would still be an adult available to act as caretaker, especially in extended families. As one would expect, proportionately the number of children without a caretaker would be largest in metropolitan areas, where this ratio is 25%. The biggest proportion of children would be affected In the Western Cape (30%) and Gauteng (24%).

Table 6: Number of children aged 0 to 18 at home with or without an adult caretaker in the household if all employed people were to be back at work

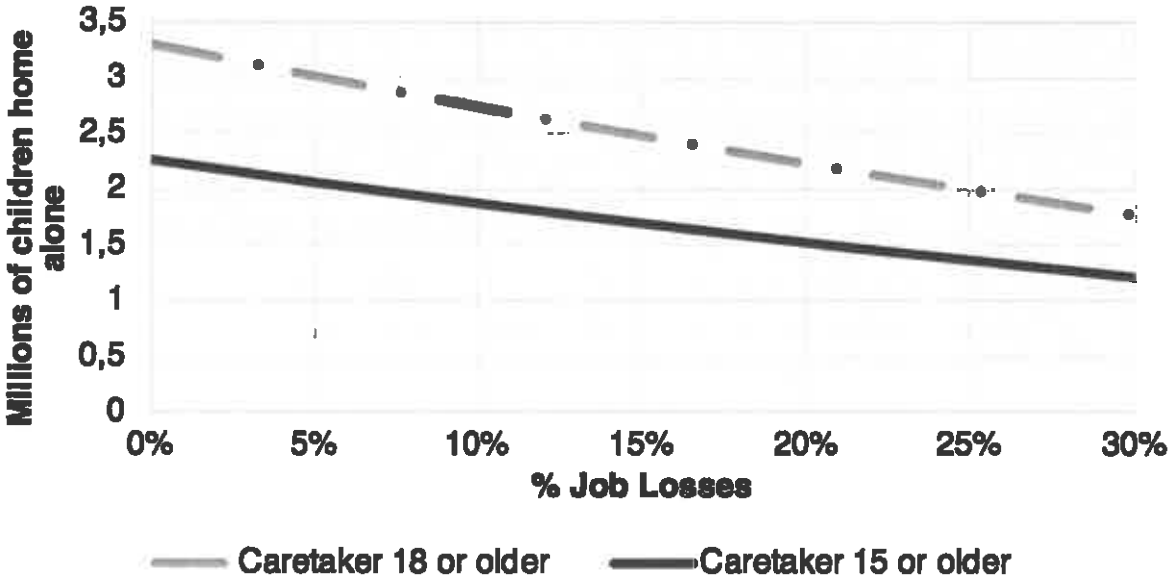
	Children with a care-taker at home	Children with no care-taker at home	Percentage with no caretaker
Western Cape	1 315 712	562 859	30%
Eastern Cape	2 207 130	341 025	13%
Northern Cape	332 266	63 860	16%
Free State	673 526	168 521	20%
KwaZulu-Natal	3 460 694	495 896	13%
North West	1 070 441	211 184	16%
Gauteng	2 809 828	891 763	24%
Mpumalanga	1 274 182	249 008	16%
Limpopo	1 837 844	315 074	15%
South Africa	14 981 623	3 299 190	18%
Non-Metropolitan	10 244 619	1 735 737	14%
Metropolitan	4 737 004	1 563 453	25%

Source: Quarterly Labour Force Survey, Quarter 4, 2019

One can further estimate these ratios allowing for older siblings (15 or above) who might be able to act as caretakers. While that reduces the numbers (Figure 7), the basic problem remains. Even if one includes household members 15-years and older as possible caretakers, there would still be 2.3 million children aged 0-15 years that could be home alone if their employed caregivers returned to work and their school grade or their ECD centre or crèche remained closed.

Given the job-losses expected to result from the lockdown and the COVID-19 induced recession, more caregivers will become unemployed and therefore would be at home and available to care for children (albeit now with less income). While this does decrease the percentage of children that are home alone, as the figure shows, even if there were 30% job losses there would still be 1.8 million children aged 18 or below that would be left home alone because their only caregivers would be at work, or 1.2 million if 15 year olds can act as caretakers.

Figure 7: Schoolchildren with no non-working adult caretaker at home under job loss scenarios



Perhaps the most severe instance of this would be the care of very young children, i.e. those under the age of 6 years. Our analysis shows that if all employed workers return to work, there would be almost one million (974 000) children below the age of six who would be left alone in households without an adult caretaker. While it is true that parents and caregivers would try and make some arrangements for members of other households to take care of their children, many caregivers may not have the networks needed, and may feel compelled to go to work to earn income to support their child(ren). This is all because community-based early childhood development centres and preschools are still not allowed to operate despite the economy re-opening.

Government Gazette No. 43381 (1 June 2020) reports that Early Childhood Development (ECD) will be allowed to re-open on the 6th of July 2020, despite the fact that the vast majority of the economy 're-opened' on the 1st of June 2020 when the country moved to Level 3 Lockdown (DBE, 2020a: p.4). It is unclear what the Department of Basic Education and the Department of Social Development think is meant to happen to these 974 000 children under the age of six who have no alternative non-working caregiver.

In addition to the above, given that most ECD facilities in South Africa are primarily privately-operated small businesses, it is unclear how many of these ECD centres and creches will have been able to survive the income loss of the extended lockdown.

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Appendix A: Provincial distributions of class size

Figure 8: Distribution of largest class taught by Grade 3 and 6 teachers in South African primary schools by province (School Monitoring Survey 2017, own calculations)

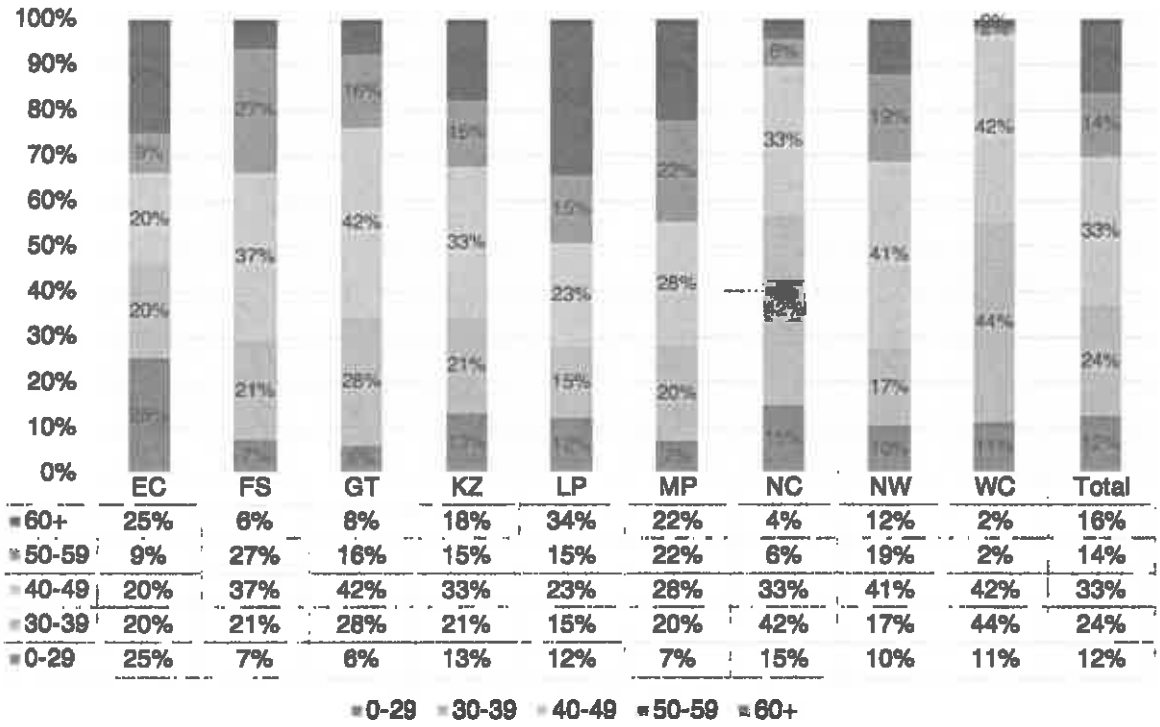
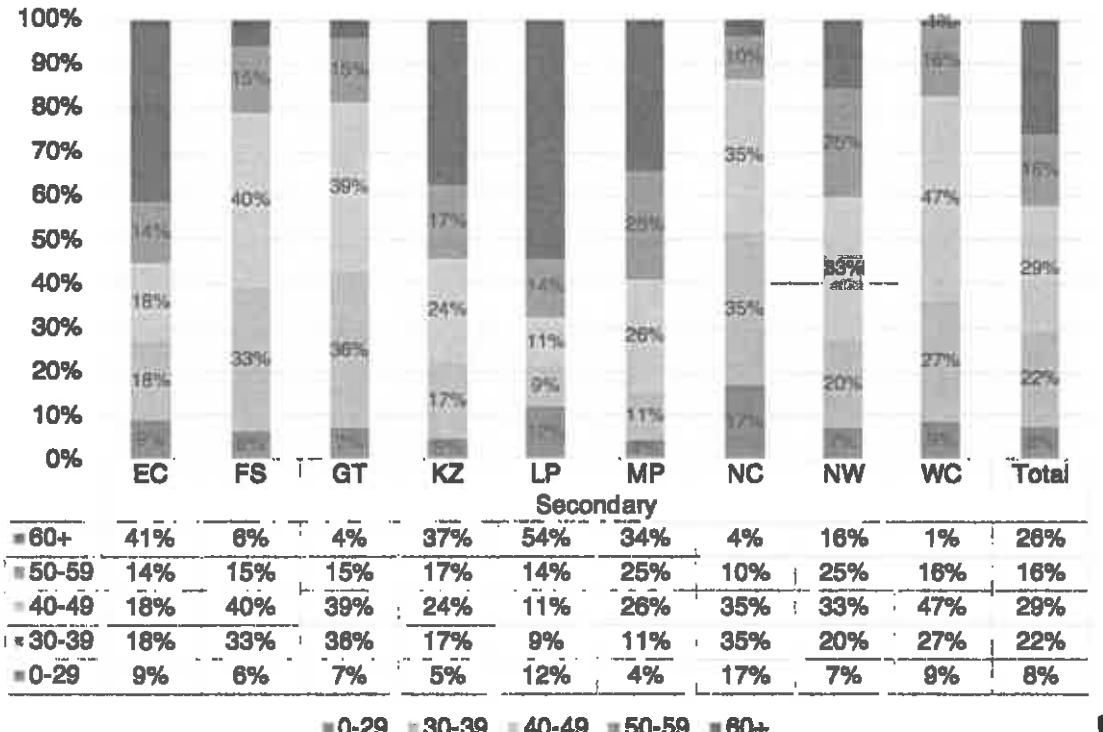


Figure 9: Distribution of largest class taught by Grade 9 and 12 teachers in South African secondary schools by province (School Monitoring Survey 2017, own calculations)



Appendix B Further evidence on class sizes in South Africa

Table7: Independent estimates of realized South African class sizes 2011-2017

Study	Grade	Year	Sample		Class sizes						Reference – variable name in microdata
			Schools	Learners	p10	p25	p50	p75	p90	Mean	
TIMSS	9	2011	285	11969	28	35	43	57	74	47,4	BTBG12
		2015	292	12514	28	35	44	53	71	46,3	BTBG12
TIMSS-N	5	2015	297	10932	24	32	40	45	54	39,1	ATBG12A
PIRLS	4	2011	341	15744	25	33	38	46	59	40,2	ATBG12A
	4	2016	293	12810	28	35	43	54	67	45	ATBR01A
SACMEQ	6	2013	297	7117	26	32	39	46	54	39,7	xclsize; yclsize; wclsize
SMS	3	2017			27	34	40	47	55	41,1	EFQ18

South African Paediatric Association

Striving for thriving kids

Paediatrician Management Group (RF) NPC
Reg No 1999/008092/08

Position statement: Return of South African Children to School during the 'Second Wave'

1 February 2021

This statement is an update to the one published on 30 May 2020, and presents the latest available evidence and considers the implications of a new virus variant (501Y.V2).

Summary

The South African Paediatric Association (SAPA) strongly recommends children return to school as soon as is safely possible. COVID-19 will continue for the foreseeable future, with infection rates increasing and decreasing in waves. Children are much less likely than adults to become severely ill with COVID-19 and are also less likely to transmit SARS-CoV-2 (coronavirus) to their contacts. The role of schools in promoting community transmission of the virus is not firmly established, but in most settings schools have contributed minimally to community transmission. Conversely, not returning to school has profound negative consequences, including detrimental effects on education, nutrition, mental and physical health, and finances. Consequently, returning to school will be beneficial to children, their parent(s) and the broader community. Non-pharmaceutical interventions must be strictly adhered to in schools and teachers should be prioritised for SARS-CoV-2 vaccination.

Background

Controversy continues regarding the reopening of schools in South Africa during the 'second wave' with conflicting views expressed by government, teacher trade unions, political parties, civil society organisations, school governing bodies, and parents. This has led to much parental, caregiver and child anxiety.

The preponderance of available evidence shows that children are both less likely to acquire SARS-CoV-2 infection, less likely to become severely ill when infected and less likely to transmit to others. Proper mitigation measures can reduce this risk even further.

Children and adolescents are less susceptible to SARS-CoV-2 than other age groups, and are less likely to be hospitalized following infection. This has been demonstrated during the first and second COVID-19 waves in South Africa. As of 2 January 2021, individuals aged ≤19 years made up 9.2% of laboratory-confirmed COVID-19 cases and 3.9% of all COVID-19-associated admissions in South Africa, while comprising 37% of the total population of SA.

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This position statement represents the views of the South African Paediatric Association and the Paediatric Management Group(PMG). These two paediatric bodies represent all paediatricians in the public and private sectors in South Africa.

Evidence to support recommendations

Evidence has, and will continue to, emerge as the pandemic evolves. Data from less well-resourced settings are eagerly awaited.

Based on the current best evidence:

1. **Acquiring SARS-CoV-2**
    a. **Children are less likely to acquire SARS-CoV-2 than adults.** They account for 1-3% of reported cases. Children and young people have lower susceptibility to SARS-CoV-2, with 56% lower odds of acquiring infection following contact with a confirmed case.[1]
    b. **Children and adolescents are less likely to become infected with SARS-CoV-2.**[2]
    c. **Children have a lower incidence of acute SARS-CoV-2 infection compared to adults**[3,4,5].
    d. **Children and adolescents younger than 20 years have 44% lower odds of secondary infection with SARS-CoV-2 compared with adults 20 years and older; this finding was most marked in those younger than 10 to 14 years.**[6]
    e. **Current SA statistics show that although the new virus variant present during the second wave has increased virus transmission compared to the first wave,** [7]**children are not at higher risk of being affected by the new strain compared to adults.**

2. **Transmission by children:**
    a. **The ability of children to transmit SARS-CoV-2 is dependent on their susceptibility, symptoms, viral load, social contact patterns and behaviour.**[1]
    b. **Younger children are less likely to transmit the virus to each other and staff compared to adolescents and adults.**[8,9,10]
    c. **At a population level, children appear to be less likely to transmit and have a minor role in overall viral transmission.** A systematic review of household cluster studies suggests that children were the index (transmitting) case in only 3 of 31 (10%) individual cluster studies.[11]
    d. **Adolescents are likely to have a slightly lower or similar rate of transmission compared to adults.**[6,12,13,14]
    e. **Children are unlikely to have boosted the pandemic.**[15]
    f. **There are minimal published studies on the mechanisms of transmission of SARS-CoV-2 by children.** A large recent study showed a clear relation between age and SARS- CoV-2 viral load, with children (<12 years) showing lower viral loads independent of sex and symptom duration. [16]

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g. Children are more likely than adults to have upper respiratory tract involvement, including nasopharyngeal carriage. They may also have prolonged respiratory and faecal shedding. [17]
h. **Young children are less likely to transmit the new variant too.** The new UK variant is about 30 percent to 50 percent more contagious than its predecessors but recent research from Public Health England detailed contact-tracing of about 20,000 people infected with the new variant — including nearly 3,000 children under 10 — showed that young children were about half as likely as adults to transmit the variant to others. There is no data on the SA variant.

3. **Severity of Disease**
   a. **In general, children have much less severe disease, accounting for less than 1% of severe cases and deaths.**
   b. **Children are more likely to have an asymptomatic infection than adults.**
   c. **When children and adolescents are infected, they are more likely to only have mild disease.**[18,19,20,21,22,23]
   d. **There are no differences in the proportion of children admitted to public hospitals, admitted to ICU, or dying in hospital during the first and second COVID-19 waves in South Africa.**[8]

4. **Teachers**
   a. **Teachers have the same risk of acquiring Covid as other professions or individuals in the community.**[24]
   b. **Teachers and non-teachers have similar Covid-19 infection rates, demonstrating that schools are not a setting of increased transmission and that schools are not increasing community transmission**[25]
   c. **Teachers are not at high risk of being infected by children. Teachers are at higher risk of contracting the virus from other adults, e.g. colleagues in tearooms, at home or in the community (outside school).**
   d. **Teachers with comorbidities are at increased risk for severe COVID-19.**
   e. **Staff members need to be more vigilant for exposure both within and outside educational settings to protect themselves, their families, their colleagues and their students. Within education settings, stringent infection control measures, particularly between staff, need to be reinforced, including limiting use of common staff rooms and 'cross covering staff across bubbles'.**[26]

5. **School transmission**
   a. **As schools have reopened internationally and in South Africa, school-related cases of COVID-19 have been reported, but there is little evidence that schools contribute significantly to community transmission.**[24,27]

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b. A 17 country European Centre for Disease Prevention and Control report found that 12 countries reported between 1 to 400 school-based clusters, but most involved < 10 cases and these often could not be definitively linked to in-school versus community-based transmission.(a) Similarly, in the United States, COVID-19 incidence among the general population was similar in counties where schools offered in-person education and those offering only virtual/online education. There was no increase in COVID-19 hospitalization rates associated with in-person education.[27]
c. There has been no noticeable effect (including both number of cases, admissions, and deaths) associated with the timing of opening or closing of schools in South Africa.[7] This suggests that schools are not an important mechanism of community transmission.
d. COVID-19 incidence in South Africa will inevitably continue to vary over the next year with recurring new waves. . Postponement of re-entry to school to reduce transmission risk to negligible would entail a delay of many months before schools could reopen.
e. Attending school or child care is not associated with receiving positive SARS-CoV-2 test results among children and adolescents aged <18 years. Rather close contact with persons with COVID-19 and gatherings with persons outside the household and lack of consistent mask use in school were associated with SARS-CoV-2 infection.[28]

6. Reduction of Transmission

a. Mitigation policies such as masking, physical distancing, and hand hygiene, resulted in minimal clusters of SARS-CoV-2 infection and low rates of secondary transmission in schools, and did not cause a larger community infection burden.[29]
b. Adherence to non-pharmacological interventions(NPI) including 1) engineering controls – (*what we can do to the environment* to reduce transmission), such as ensuring ventilation and sufficient space; 2) administrative controls – (*what we can arrange* to reduce transmission), such as staggered time-tabling, screening, hand hygiene, cough etiquette and appropriate environmental cleaning; and 3) personal protective equipment(PPE) –(*what we can wear* to reduce transmission, such as non-medical (cloth) face masks and eye protection visors) should reduce the spread of the virus from the individual with COVID-19 to other learners or staff in schools.

7. Additional considerations

a. Most South African schools will be unable to easily keep children 1 metre apart in classrooms, and conditions may limit outdoor learning and other efforts to improve classroom ventilation. Similarly, ensuring that physical distancing is maintained during school transport may be problematic.
b. A recent South African survey of parents suggested that only 53% of adults think schools should not re-open until COVID-19 situation improves.[30] Parental anxieties need to be acknowledged but countered with effective education and interventions.

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8. **Indirect effects of the pandemic**
    a. Impact on communities: lack of social contact, reduced access to health care, dependence on technology for access to health care and education[31]
    b. Impact on families: poorer parent mental health, competing demands and increased stress, job losses and reduced income, impacts on perinatal and mental health[31]
    c. Impact on children: poorer mental health and increasing behavioural and developmental concerns, lack of access to play and social opportunities, increased isolation, academic impacts, child abuse and neglect.[31]
    d. In all of these aspects, disadvantaged families seem to be disproportionately affected[31]

9. **Risk-benefit analysis**
    a. The **benefits of returning to school**, particularly for poorer children, include the positive impact on their learning, access to the School Nutrition Programme (one meal per day), and mental health and well-being gains. Only about 20% of school children benefit from online schooling according to the Department of Basic Education. School reopening will increase parents' and caregivers' ability to return to work.
    b. Schools provide so much more than just education in terms of providing nutrition and food security, physical and psychological safety which should be maintained at all costs in the face of potential COVID collateral damage to children.

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Recommendations

Return to school:

1. SAPA supports the position that children should be returning to school as soon as is safely possible.
2. Most children, including those with asthma, allergic conditions and HIV can return to school. Children with severe immunosuppression, uncorrected significant congenital heart conditions, chronic organ failure, chronic severe respiratory disease and severe neurodevelopmental disability may be safer at home. Advice from relevant healthcare professionals should be sought if there is uncertainty.
3. Early Child Development (ECD) settings promote physical health, emotional safety, social connections and engaged learning. Reopening ECD settings can provide children with much-needed emotional support, learning opportunities and offers reliable childcare options for parents returning to work.[32]
4. Children with limited mobility (who cannot avoid coming into close contact with others nor practice preventative measures), and those with cognitive impairment or difficulty understanding the importance of practicing preventative measures, may be at at increased risk of acquiring Covid-19 infection and may be safer at home.[33]

Transmission reduction practices:

5. Schools should undertake measures that are known to reduce pathogen transmission. Schools should provide water, sanitation and waste management facilities and follow environmental cleaning and decontamination procedures. Wherever possible, disinfection measures to clean high traffic areas should be conducted at the start and end of each day and regularly during the course of the day. The focus should be on surfaces that are frequently touched (railings, lunch tables, sports equipment, door and window handles, toys, teaching and learning aids, etc.) Cleaning of the environment should be with soap and water and/or wiping with alcohol or chlorine-based solutions. Safety during school transport requires similar attention.
6. For individual children, measures such as physical distancing (learners at least 1 meter apart), masking, regular handwashing with soap (or sanitiser use, if water is unavailable) should be implemented. The use of decontamination tunnels or spraying of children has no benefit and may be harmful.
7. Where all the above measures are not available, SAPA's view is that educational activities should nevertheless commence as safely as is possible, while attending to addressing any deficiencies.
8. An individual child aged 6 years or older should be required to wear a cloth face mask to prevent disease transmission. Use of plastic shield masks or other higher safety category masks is unnecessary, although not discouraged. There is no need for children to routinely put on aprons, gloves or other protective gear.

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9. Children should receive intensive age-appropriate education around the behaviour change required from them during the first few days back at school, and regularly thereafter.
10. Additional measures such as different break schedules and splitting classes to attend on alternate days should be considered to reduce learner congregation. Extracurricular activities at schools, including contact sports, should be strictly controlled to reduce transmission risk. The implementation of these additional measures should be guided by what is feasible, practical and acceptable and tailored to the needs of each school setting.
11. There is no role for nutritional supplements, medication, or other agents as none are currently proven to prevent COVID-19 disease acquisition or recovery in children.
12. Teachers should take standard workplace precautions, including physical distancing in staff-rooms, to reduce the risk of SARS-CoV-2 transmission. Teachers with medical comorbidities or other risk factors for severe COVID-19 should preferably be allowed to participate in lower-risk activities at school, undertake virtual jobs or teach remotely.

Symptom screening, close contacts, and symptoms of Covid-19:

13. Symptom screening should be undertaken at school entry each day, however there is minimal benefit for routine thermal screening. Sick learners, teachers and other staff should not go to school. Children who have a fever, cough, runny nose, sore throat, or diarrhoea and vomiting should stay at home. It should, nevertheless, be recognised that most children (and many teachers) will be asymptomatic during SARS-CoV-2 infection.
14. Children who are well but who have an infected household contact should remain at home for 10 days from the onset of the contact's symptoms. There should be no requirement for children to have a negative SARS-CoV-2 test before being allowed to return to school.
15. Children who have a SARS-CoV-2 infected classroom contact - defined as close contact (less than 1.5 m) with an infected learner or teacher for 15 or more minutes while not wearing a mask - should be advised to stay at home for 10 days.
16. If a child develops symptoms of COVID-19 disease, he/she should be tested. If negative, with no contact history, he/she can return to school immediately. If positive, or if no testing is done, the child must remain at home for 10 days from the onset of his/her symptoms (see National Institute of Communicable Diseases guidelines).[34]
17. Children with high-risk individuals at home (such as the elderly) should be advised to reduce contact time with them and do this more safely (e.g. wearing a mask during contact time), with more vigilant attention to home cleansing, and developing a home routine that minimises risk such as limiting the sharing of towels and kitchen utensils.

Outbreaks in schools:

18. There is Department of Basic Education guidance on what constitutes a school outbreak and when a school should be considered for full or partial closure because of an excessive number of COVID-19 cases. This situation can be managed by educational authorities in conjunction with

public health experts on a case-by-case basis once schools reopen. Entire school closures should be avoided unless necessary. Individual class closure(s) is/are a more practical and sustainable solution.

The way forward:

19. Regular reassessment and evaluation of the situation will be crucial over the forthcoming months.
20. We acknowledge that parental anxiety is not unfounded, with some children at higher risk for severe disease. Parental and caregiver autonomy must be respected. High-risk children and those children whose caregivers elect not to send them to school are as entitled to education and efforts should continue to facilitate this.
21. Learner representation should be included into future decision making.[35]

These recommendations may, and will, be amended based on emerging and accumulating evidence.

SAPA and PMG remain committed to the health and wellbeing of children in South Africa and to that of parents, teachers and others in the learning environment.

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DAILY MAVERICK

(/)

MAVERICK CITIZEN

COVID-19 OP-ED

Experts: End South Africa's national state of disaster

Illustrative image | Sources: Victor Moriyama / Bloomberg via Getty Images | Sean Gallup / Getty Images | Gallo Images / Sharon Seretlo

By Francois Venter, Marc Mendelson, Jeremy Nel, Lucille Blumberg, Zameer Brey and Shabir A Madhi

PO

(https://www.dailymaverick.co.za/author/francois-venter-et-al/)

23 Jan 2022

On 15 March 2020, South African President Cyril Ramaphosa declared a national state of disaster in terms of the Disaster Management Act, to enable the government to develop a coordinated disaster management mechanism to mitigate Covid-19. In so doing, the government was required to provide relief, protect property, combat disruption, deal with the destructive and other effects of the disaster, and protect the public — only to the extent that 'it is necessary for the purpose'.

Almost two years on, we are entering a new phase of the pandemic. All over the world, including within the WHO, there is an assessment taking place of the measures that will be most suited to this phase. Top of the list is vaccination, good indoor ventilation, and close monitoring of the SARS-Cov-2 virus and other possible pandemic threats.

South Africa needs to do this too. As scientists, our current understanding of the science, the building of immunity protecting against severe Covid-19, and experience with policy renders most state of disaster measures still in place unfit for purpose and requires tailoring of others.

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Being on permanent "Code Red" affords little protection against a hyper-transmissible SARS-CoV-2 variant such as Omicron and entails unacceptable societal costs.

SARS-CoV-2 has been a devastating virus, killing friends, family and colleagues, as well as leaving many people with symptoms of long Covid (https://www.nicd.ac.za/diseases-a-z-index/disease-index-covid-19/long-covid/). We are not suggesting ignoring it, but the risk is changing for South Africa and our response needs titrating against the risk it poses.

We have no truck with Covid-denialists or anti-vaxxers.

But change is needed now. The focus on Covid-19 has set back many other health programmes and broader socioeconomic and educational programmes.

Finally, the continued lack of accountability and transparency the act affords to politicians for unscientific and irrational decision-making on

issues of public health is long past justification.

Further evolution of SARS-CoV-2 may generate more variants, but the foundation of protection from severe disease, hospitalisation and death that is our immune response — whether by prior infection (now, very conservatively, an estimated three quarters of South African inhabitants) or by vaccination (for about a third) — has been consistently exhibited across the three waves caused by the Beta, Delta and now Omicron dominant variants.

The decoupling of infections and severe disease and death from Covid-19 has been most stark in the waning Omicron-dominant wave in South Africa, despite earlier theoretical concern about the spectrum of mutations identified in the variant.

Omicron, a variant that causes many millions of infections (possibly infecting half the South African population), did not result in significant stress on the country's health system through hospitalisations and excess deaths (see here (https://www.samrc.ac.za/reports/report-weekly-deaths-south-africa)).

Consequently, despite formal case numbers probably equating to the combined total of both the first and second Covid-19 waves, immunity derived from prior infection and vaccination protecting against severe Covid-19 won the day.

We believe that this is likely to continue in future waves, barring the unlikelihood of mutations affecting all aspects of immune responses, which

would be analogous to a completely "new" type of virus having evolved from an immunological perspective.

In such an unlikely scenario, as would be the case for the immediate emergence of another novel pandemic-causing virus, containment measures could be reconsidered. But we can't proceed as if this is the likely scenario — it isn't, and the costs of pretending it is too high.

The vast majority of South Africans now have immunity, meaning Covid-19 in 2022 is likely to have a similar death rate to seasonal influenza (10,000-11,000 deaths a year) in the pre-Covid era, as opposed to the 290,000 Covid- related excess deaths (https://www.samrc.ac.za/reports/report-weekly-deaths-south-africa) over the past 22 months of the pandemic, and much lower than the projected 58,000 annual TB-related deaths (https://tbfacts.org/tb-statistics-south-africa/).

Hence, as the beginning ends, we believe the time is now to immediately end those measures that serve no purpose, some of which are detrimental, and progressively enable a return to normal.

End the state of disaster

We see no reason for the continued use of this legislation, nor for the National Coronavirus Command Council.

In terms of SARS-CoV-2 the government should be single-mindedly focused on the vaccine programme and protecting health facilities from the impact of large numbers of admissions.

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Our suggestions below do not require continued centralised, secretive and unaccountable decision-making for this to occur. Arguments that the state of disaster is required to enforce interventions like masks or limits on social gatherings are unconvincing, as most restrictions need to be lifted anyway; improved communication (https://www.dailymaverick.co.za/article/2021-11-28-what-we-say-in-a-pandemic-is-of-critical-importance-but-how-we-say-it-is-even-more-important/), together with conventional legal and social persuasion mechanisms can be used to ensure that the very limited number of interventions required are executed.

We know the vital Covid Social Relief of Distress (SRD) grant is linked to the Disaster Management Act, and it is vital for millions of people's livelihoods that this continues. The Department of Social Development Expert Panel on Basic Income Support (https://www.gov.za/speeches/social-development-launches-report-basic-income-support-18-60-year-olds-13-dec-10-dec-2021) has provided clear guidance regarding how this can be continued under the Social Assistance Act, which we support.

We are advocating that Covid be seen as another health priority, with rapid decision-making led by the Department of Health consulting other departments through inter-ministerial or other existing legislative structures. There is a multiplicity of examples of where health collaborates closely with other departments, and these can be employed.

Stop school restrictions

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The impact on education has been severe, and we are now at the point where every resource should be focused on making 2022 a "back to normal" year.

Unfortunately, the Minister of Education has announced further rotational learning — a huge mistake (https://www.timeslive.co.za/sunday-times/opinion-and-analysis/2022-01-16-get-children-back-in-school-full-time-or-we-will-create-a-lost-generation/).

Children experience only a very small chance of harm from infection with SARS-CoV-2, except for those under one year of age or in the presence of underlying medical conditions. Children suffer illnesses from influenza and a range of other viruses and infections too, and we sent them to school prior to this pandemic, understanding the massive benefits to child health and development.

Furthermore, keeping children out of schools inflicts harm to the social/financial fabric of the household when carers have to stay home to mind the kids (anyone doubtful about the huge consequences of these school disruptions should read this Unesco document (https://en.unesco.org/covid19/educationresponse capturing the harms in detail).

Schooling needs to happen again as normal. Vaccine mandates are appropriate for all educational staff, for their own health and to protect children by avoiding further disruptions to teaching. Teachers or other educational workers should be assisted with attention to ventilation and encouraged to wear masks indoors if they are in high-risk groups.

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With the very high levels of asymptomatic transmission and community immunity present, there is no reason to continue restricting class sizes or children playing. Enforcing physical distancing measures in classrooms, such as requiring students to be 1.5 metres apart from each other, is impractical and not likely to substantially reduce transmission in the face of these new variants. Also, considering that for every one documented Covid-19 case in South Africa there are nine other undiagnosed cases due to limited testing, there is no place for school closures when cases of Covid-19 are identified,

Reform how Covid is handled in healthcare facilities

The ongoing restrictions on allowing family visitors in hospitals are unnecessary and cruel.

Testing asymptomatic patients for Covid indefinitely is a waste of money and resources — even in hospitals, in most instances. Testing of people with respiratory symptoms, especially when there is a resurgence, should continue into the immediate future as it could assist in management of the person.

As for educators, vaccine mandates for healthcare workers make sense, to protect them at an individual level, and the health system from sickness-related absenteeism.

Also, healthcare workers, being more susceptible to being infected because of the nature of their work, might require annual booster doses of vaccines to enhance protection even against mild

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disease. Also, booster doses to healthcare workers could reduce the risk of them transmitting the virus to vulnerable patients.

Finally, meaningful managerial support to facilities — ensuring the mundane, but crucial everyday issues such as staffing, compliance with general infection prevention measures, oxygen and drug supply, and ambulance services, which was found wanting despite plenty of warning, especially during the first three waves — should be a primary focus of the Department of Health.

End all restrictions on outdoor activities

With increasing vaccination coverage and a greater understanding of the predominant role of aerosols in transmission (https://www.science.org/doi/10.1126/science.abd it is time to open up our outdoor activities again.

Furthermore, masks should no longer be compulsory outdoors. Vulnerable people may elect to wear a mask outdoors in crowded circumstances, while understanding that vaccinations will provide the greatest protection to their health.

What about indoor restrictions?

We must eventually accept that indoor restrictions will have to end too. As an intermediate step, vulnerable people may be advised to avoid crowded indoor venues when the Covid caseload is high, and/or wear a mask for added protection.

As medical veterans of mask-wearing, we have no patience with arguments around discomfort, health or misguided infringements of freedoms.

However, we can't keep wearing masks in all indoor circumstances forever, and more so now that the risk of severe Covid-19 is greatly diminished compared with earlier stages of the pandemic when there was little immunity against severe Covid-19.

Masks, especially high-quality masks, work when fitted well, but we have to anticipate that — for all but the most vulnerable patients — our immune systems are going to be enough to protect us (vaccines!).

There may be places where masks stay mandated (on densely packed public transport), but overall, the indoor mask-wearing mandate should eventually fall away.

End routine sanitising (and taking of contact details)

We now know acquisition of SARS-CoV-2 from surfaces (and hands) is very rare (https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/surface-transmission.html) (and here (https://www.nature.com/articles/d41586-021-00251-4)).

We think having routine foot-pump hand sanitisers at the entrance to bathrooms, food markets and crowded venues is good hygiene, and one of the few things we want left over from the pandemic — not for the prevention of Covid-19, but for all the other nasty bugs killed by handwashing.

However, the "hygiene theatre" at many workplaces, venues and restaurants, with the spraying of hands repeatedly with alcohol sprays combined with thermometry, both of uncertain quality, and recording of names and cell numbers with no intention of following up, is a waste of time and distracts from things that make a difference — *opening windows and encouraging ventilation.*

End routine thermometry and daily screenings

It is a useless waste of time and money. Always was. Many infections are asymptomatic, and even when they're not, a fever is only present in a small minority of cases. Most of the readings of less than 350C imply the person is dead or rapidly becoming so!

Also asking people to complete a questionnaire on whether they have any symptoms of Covid-19 is meaningless, since a large majority of infections would be asymptomatic. If individuals are symptomatic for respiratory illness (and not only due to Covid-19), they should *always* take precautions of not infecting others by limiting their social engagement and wearing a face mask when in public. This message needs reinforcing: it is a basic of public health and infection control.

Stop fogging — yesterday

Another waste of time and money, but this time it can be harmful. This holiday, several of us stayed in places proudly advertising that they "fogged" between guests. We also note that government departments, despite their own guidelines from

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early 2020, persist in shutting down police stations, grant offices and schools, at massive cost.

Fogging is potentially harmful to health, using damaging chemicals, and is only used in highly focused infection outbreaks in health facilities. **Cut it out.** There is no scientific basis for the fogging and closure of any venue, including police stations and other government buildings following the diagnosis of an infected case.

Stop all PCR and antigen testing at borders

There is no reason for insisting on this when the virus is circulating so widely. Requiring testing for a plane trip from Gaborone to Joburg, but not Cape Town to Joburg, or for people driving in a private vehicle from Mozambique, makes no sense. It does not stop variants and even if someone with the virus slipped over the border, the contribution to existing infection rates is negligible.

This testing requirement, pervasive across the world, has created a massive money and time-wasting international industry, with no health benefits.

South Africa, a victim (and previous proponent) of baseless travel bans, should take a public and widely communicated step that the ONLY requirement to enter the country is proof of vaccination (or medical reason for not having vaccination), mainly to protect our hospitals and ICUs.

Instead, redirect these resources towards vaccinating at borders for those leaving and those coming into South Africa, recognising many of our neighbouring countries continue to have constrained vaccine supply.

Stop routine testing mild and asymptomatic cases

There is nothing to offer people who are positive that you wouldn't offer for any mild respiratory infection. Routine testing of asymptomatic patients should stop. Staff should be vaccinated and theatre staff should use high-quality masks. PCR testing protocols (with gaps between testing and actual surgery) are far from perfect, and asymptomatic infection probably adds minimal risk to surgery.

Hospitalised symptomatic people should be tested, as we have treatments, but for mild disease, testing really only makes sense for those at high risk (so we can watch them closely, and for possible future access to new drugs that seem to work well at keeping this group out of hospital).

You can make a case for testing yourself if visiting granny or someone vulnerable, but understand that the tests are not perfect (they can give a false negative result) and that unless the person you are visiting is living as a hermit, their risk of exposure to someone else who isn't testing and infected is very high.

Again, vaccines are the best protector of the vulnerable, including the need for a third dose of vaccines which the government needs to make available with fewer restrictions.

End quarantine and contact tracing

On 23 December 2021, the Ministerial Advisory Committee on Covid-19 issued revised protocols on contact tracing, quarantine and isolation, eliminating the need to contact trace and quarantine the contacts of people who tested positive. Five days later, the Department of Health rescinded the advisory.

We have recently explained in an opinion piece (https://www.dailymaverick.co.za/article/2021-12-15-covid-19-in-south-africa-its-time-to-ditch-quarantining-and-contact-tracing/), why contact tracing and quarantine has long been redundant in South Africa.

Put simply, only a tiny percentage (~10%) of people who are infected with the virus will have been tested and found to be positive. Very high rates of asymptomatic infection, high levels of protective immunity against severe disease, and the social barriers stopping most of the population from effectively quarantining, makes the practice redundant.

For similar reasons — plus a lack of feasibility to contact trace even the people who have been in contact with a known case of Covid-19 due to the extreme numbers (remember, Omicron may have infected almost half the country) — it would make contact tracing an entirely moot point.

Reduce isolation

Currently, confirmed Covid-19 cases are asked to isolate for 10 days from their test (if no symptoms), or from the beginning of symptoms.

Ten days came from original data which suggested that peak infectiousness was from one to three days pre-symptoms until eight days post the onset of symptoms. Recently, a number of countries, including the US, have shortened the isolation period to five days from test or symptom onset.

We believe the US CDC's more pragmatic approach (https://www.cdc.gov/coronavirus/2019-ncov/your-health/quarantine-isolation.html) of five days isolation, with a return to work and society using a mask for the next five days, is sound.

Even more pragmatic is to limit isolation only if a person is symptomatic.

Stop all curfews

The only reason for this was to protect health facilities from trauma-related hospital and ICU admissions. Our facilities coped with the last wave, so this reason no longer holds. The government would do much better to run high-profile education campaigns on alcohol harm and better policing and punishment of traffic and alcohol-related crime. Glad to see that all current curfews have been lifted.

Replace the current vaccination programme with something radically better

The fact that only a third of South Africans have received at least a single dose of Covid-19 vaccine after almost a year is woeful. Others have eloquently pointed to the many failings and

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reasons (https://www.dailymaverick.co.za/article/2021-12-28-dose-of-discrimination-why-the-government-failed-to-reach-its-vaccination-targets/).

If we are called upon to suddenly boost the conservatively estimated 30% of the population that is vulnerable (the elderly and those with diabetes and obesity, the major readily identifiable risk factors for severe illness), at current rates it would take another year to get anywhere close — for Omicron, we perhaps had two weeks before the wave was firmly upon us.

The current system simply does not move quickly enough, and vaccine hesitancy is a convenient shroud to hide behind a system that is currently unable to deliver vaccines efficiently or conveniently.

Vaccines are our major protector — everything else is a mitigator — and we need a radical new strategy that makes getting vaccines as easy as buying milk and bread.

South Africa has already inadvertently reached 70% "immunity" due to the high force of infection and roll-out of vaccines. Besides which, the 70% target for vaccine coverage is outdated and now a totally arbitrary value because herd immunity (ie when the virus is unable to transmit in the community) is no longer an option (https://theconversation.com/pasha-118-herd-immunity-isnt-achievable-we-need-to-learn-to-live-with-covid-19-165480).

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The main focus of the vaccine drive should be to achieve >90% vaccine coverage in people older than 50, and to provide third doses to very high-risk groups.

In addition: Replace the cumbersome EVDS system (https://www.gov.za/covid-19/vaccine/evds)'s registration requirements with a simplified guideline; allow the private sector to separately procure and distribute vaccines and start a proper seamless door-to-door campaign that aims to reach the millions of poor and undocumented (there are excellent Eastern Cape and other models (https://bhekisisa.org/health-news-south-africa/2021-10-01-sas-covid-vaccine-drive-5-problems-and-solutions-from-rural-south-africa/)); offer vaccines at routine medical queues and chronic medicine pick-up points, grants and pension queues, and central taxi vaccination distribution programmes.

For people needing certification so that they can cross borders, special sites can administer and provide digital certificates.

If we listen to individuals in communities (as done in the most recent Covid-19 Vaccine Survey (http://www.opensaldru.uct.ac.za/bitstream/hand CVACS-Survey1-PreliminaryResults.pdf?sequence=1)), we will hear many people who are ready to be vaccinated asking for an easier, more convenient process. For example, 34% of the unvaccinated in the survey would get vaccinated as soon as possible, and of those, 70% would take the vaccine if offered at home or place of work.

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Furthermore, messaging and administrative processes around EVDS leave much to be desired, with only a quarter understanding that pre-registration is no longer a requirement for vaccination.

We have never made electronic registration a requirement for any social or health programme, and introducing it in a pandemic is risky, even in well-resourced, high-income countries.

Arguments about duplication ("people getting more vaccines than they should") are weak, with only a third of the country vaccinated.

Where data on specific demographics is available (perhaps captured retrospectively into the EVDS or similar system), it should be made public, so community-wide efforts to reach under-vaccinated populations can be made.

Vaccine mandates?

Some countries (like Greece and Austria) have made vaccines mandatory for vulnerable populations, with fines for noncompliance, reasoning that this is required to protect precious hospital and ICU resources.

Vaccination mandates have been implemented very effectively in many countries, including places with strong histories of individuality, such as France, and in many workplaces in South Africa.

We have no patience with the wilful misportrayal of vaccine side-effects by anti-vaxxers on social media, and the use of this argument against mandates.

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The authors acknowledge the programmatic complexity and feasibility of vaccine mandates. The current vaccines work best in protecting against severe Covid-19 and are somewhat less predictable in preventing infections due to some antibody-evasive variants such as Beta and Omicron.

Nevertheless, Covid-19 vaccines still result in a quicker decrease in the viral load and lessen the duration of shedding, even due to Omicron, which would reduce the infectiousness of a person (see here (https://www.thelancet.com/journals/laninf/article/3099(21)00690-3/fulltext)).

In the context of safeguarding healthcare systems from avoidable hospitalisations, as well as using whichever tools are available to us to safeguard people in high-risk indoor environments, mandatory vaccination should be considered, particularly when people are involved in indoor gatherings.

Dropping all these restrictions: what if we are wrong?

The virus has caught us off-guard on several occasions, especially regarding the remarkable transmissibility of Delta and Omicron, and the antibody-evasiveness of Omicron (https://directorsblog.nih.gov/2021/12/14/the-latest-on-the-omicron-variant-and-vaccine-protection/), and it may happen again. But we feel there are two extremes in the debate — a "we must stay on Code Red until we are certain" extreme (which does not acknowledge that we have a wealth of knowledge and experience now), and a

"let-it-rip" extreme (which is a spectrum from understandable exhaustion and frustration with a lack of seeming progress on relaxing restrictions, to a range of over-confident pundits).

So what are we recommending?

In summary, we are recommending a risk-adjusted approach where scarce resources are much more targeted and the negative consequences of increasingly irrelevant measures, best described as Covid theatre, are discarded.

We are advocating for a strong focus on those at risk of severe infection by increasing vaccination, masks being worn when indoors and maybe avoid indoors during a wave. In the long term, vaccination is by far the greatest priority over other measures (including boosters, as needed).

It is quite possible to responsibly open society rapidly while maintaining early monitoring systems — something South Africa is blessed with.

Remember that all the current vaccines, as well as immunity from past infections, maintained high protection against severe Covid and death against ALL the variants, across the globe, and probably will work against the next one.

A cautious approach would be to get rid of the above measures, while monitoring and sounding any early alarms such as ongoing sentinel wastewater surveillance (https://www.nicd.ac.za/wp-content/uploads/2021/11/Wastewater-based-

epidemiology-for-SARS-CoV-2-surveillance-in-South-Africa-week-46.pdf) to detect an increase in virus load in the community.

Once there is a suggestion of a new surge of infections, increasing attention to new vaccination requirements (by fast-tracking vulnerable people to boosters, if the science suggests this), while monitoring and ensuring health facilities are prepared, makes sense.

At the same time, communicating carefully and transparently regarding any escalating risk, especially to vulnerable populations, may allow them to take additional measures to protect themselves: they may temporarily want to pay more attention to distancing and masking indoors, as much as they are able.

Government support to vulnerable populations thus far has been poor, and unfocused, so attention to this group — delivery of medication at home, food security, home vaccinations and other assistance — should receive priority. Many of the innovations that healthcare workers have developed in this vein should remain part of the health system in perpetuity as they take us closer to patient-centric care.

Finally, there is as great a chance that we are at risk of another pandemic virus in the future, as of the evolution of this one. TB and seasonal influenza were major killers pre-Covid and will remain so, as we have not addressed social determinants of infection.

We call on the South African government to set up a permanent pandemic preparedness body, be it a Ministerial Advisory Committee on Emergency Preparedness or Strategic and Technical Advisory Group, to monitor global threats, ensure that the policies and procedures are in place to rapidly move the country into pandemic mode (if needed), and that supply chain requirements are met.

Finally, we all need to reflect on the fact that there are also several current pandemics that continue to kill tens of thousands of people every year in South Africa — TB, pneumonia, HIV, antibiotic-resistant infections — which never went away. Many are prevented by vaccines or treatment — and greater attention needs to be focused on those, too. **DM/MC**

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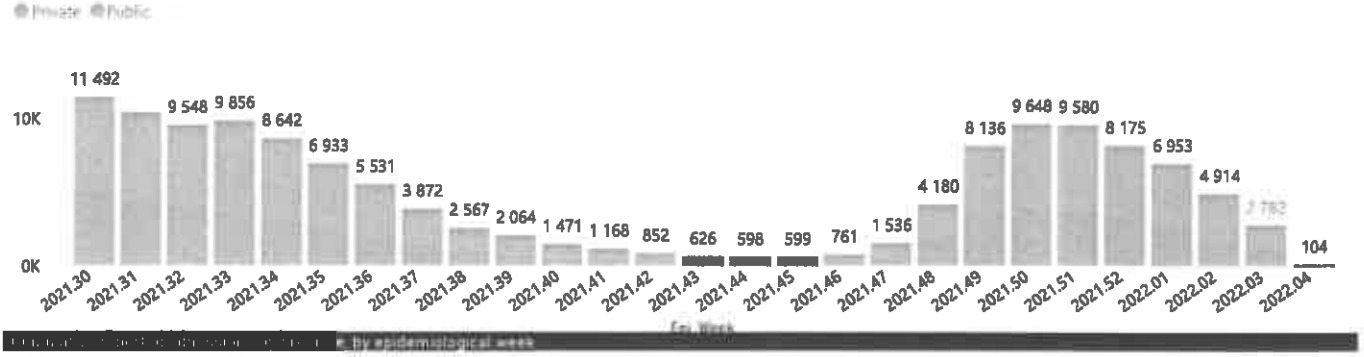
24 January 2022	NICD National COVID-19 Hospital Surveillance	National

health
Department: Health
REPUBLIC OF SOUTH AFRICA

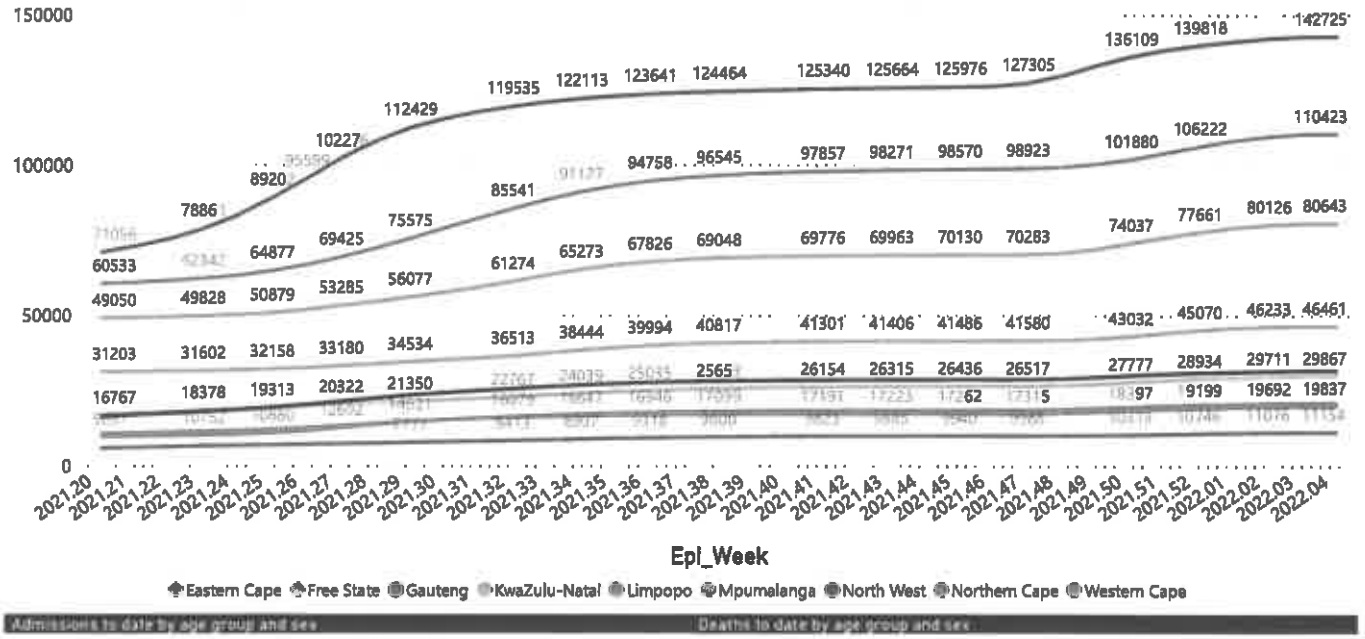
The number of reported admissions may change day-to-day as enrolled facilities back-capture historical data.
The Western Cape government has been unable to provide daily data on patients who are on oxygen or ventilated.
The data below refer to admitted patients who test positive for SARS-CoV-2 on PCR or antigen tests.

National Institute for Communicable Diseases

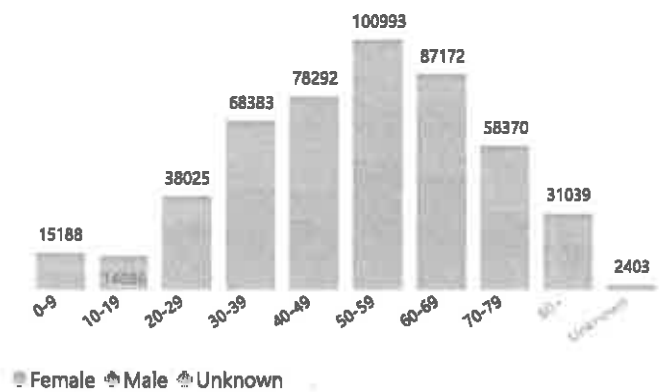
Hospital admissions of COVID-19 cases by health sector by epidemiological week



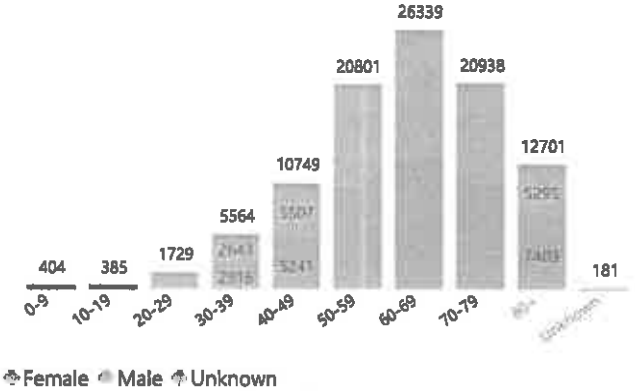
[redacted] by epidemiological week



Admissions to date by age group and sex



Deaths to date by age group and sex



24 January 2022	NICD National COVID-19 Hospital Surveillance	National

The number of reported admissions may change day-to-day as enrolled facilities back-capture historical data.
The Western Cape government has been unable to provide daily data on patients who are on oxygen or ventilated.
The data below refer to admitted patients who test positive for SARS-CoV-2 on PCR or antigen tests.

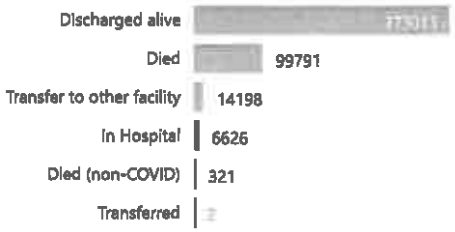
Ward of currently admitted patients

General Ward High Care Intensive Care Unit

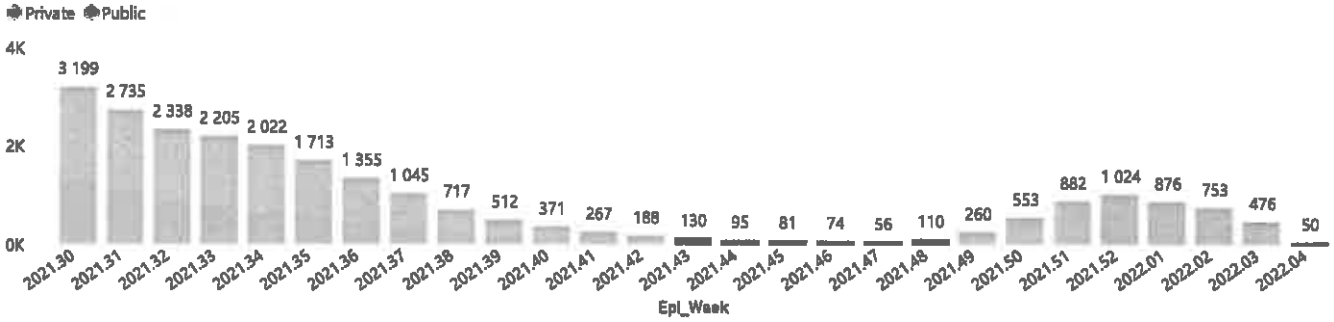
Interventions for currently admitted patients

Currently Oxygenated Currently Ventilated

Admissions to date by discharge type



Deaths by epidemiological week and sector



Summary of reported COVID-19 admissions by province by sector

Province	Facilities Reporting	Admissions to Date	Died to Date	Discharged to date	Currently Admitted	Currently in ICU	Currently Ventilated	Currently Oxygenated	Admissions in Previous Day
Eastern Cape	**104**	**46483**	**12914**	**31022**	**611**	**23**	**49**	**90**	**1**
Private	18	14880	3325	11326	159	22	9	3	0
Public	86	31603	9589	19696	452	1	40	87	1
Free State	**55**	**29878**	**5913**	**21536**	**253**	**14**	**11**	**52**	**7**
Private	20	13328	2211	10817	122	13	9	6	0
Public	35	16550	3702	10719	131	1	2	46	7
Gauteng	**136**	**142889**	**29068**	**108317**	**2283**	**192**	**85**	**226**	**25**
Private	96	80283	14253	64481	1047	154	54	58	9
Public	40	62606	14815	43836	1236	38	31	168	16
KwaZulu-Natal	**116**	**80671**	**16714**	**59606**	**1229**	**131**	**48**	**225**	**22**
Private	47	42350	7194	34232	509	96	30	44	5
Public	69	38321	9520	25374	720	35	18	181	17
Limpopo	**48**	**19843**	**5201**	**13872**	**169**	**9**	**5**	**32**	**17**
Private	7	8644	1687	6743	74	7	1	1	3
Public	41	11199	3514	7129	95	2	4	31	14
Mpumalanga	**40**	**20889**	**4709**	**15458**	**182**	**12**	**11**	**24**	**4**
Private	9	10837	1642	9025	86	11	7	8	1
Public	31	10052	3067	6433	96	1	4	16	3
North West	**30**	**31676**	**4691**	**24388**	**241**	**16**	**13**	**101**	**3**
Private	13	11835	1646	9670	85	13	10	15	0
Public	17	19841	3045	14718	156	3	3	86	3
Northern Cape	**35**	**11154**	**2384**	**8139**	**85**	**7**	**5**	**19**	**3**
Private	6	5282	827	4185	27	4	2	1	0
Public	29	5872	1557	3954	58	3	3	18	3
Western Cape	**102**	**110468**	**18197**	**90675**	**1334**	**130**	**28**	**23**	**7**
Private	43	36563	5968	30003	462	60	28	23	1
Public	59	73905	12229	60672	872	70			6
Total	**666**	**493951**	**99791**	**373013**	**6387**	**534**	**255**	**792**	**89**

PO

24 January 2022	NICD National COVID-19 Hospital Surveillance	National

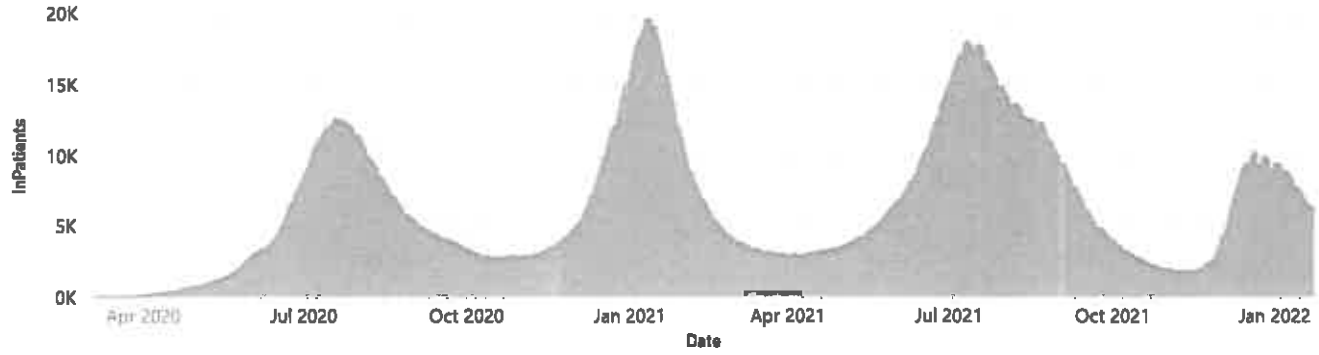
health
Department:
Health
REPUBLIC OF SOUTH AFRICA

The number of reported admissions may change day-to-day as enrolled facilities back-capture historical data.
The Western Cape government has been unable to provide daily data on patients who are on oxygen or ventilated.
The data below refer to admitted patients who test positive for SARS-CoV-2 on PCR or antigen tests.

Summary of reported COVID-19 admissions by province by sector

Sector	Facilities Reporting	Admissions to Date	Died to Date	Discharged to date	Currently Admitted	Currently in ICU	Currently Ventilated	Currently Oxygenated	Admissions in Previous Day
Private	259	224002	38753	180482	2571	380	150	159	19
Public	407	269949	61038	192531	3816	154	105	633	70
Total	**666**	**493951**	**99791**	**373013**	**6387**	**534**	**255**	**792**	**89**

Daily current In-Patients over time

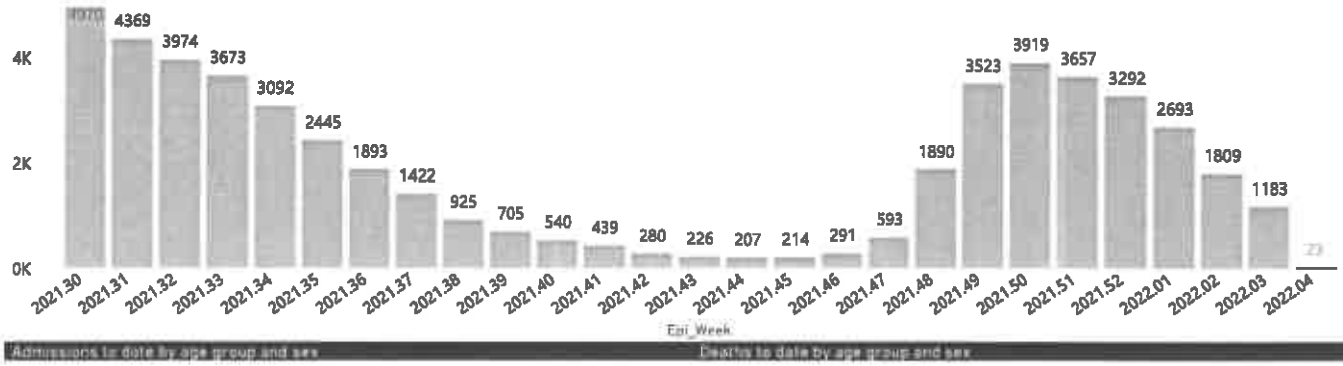


24 January 2022	NICD National COVID-19 Hospital Surveillance	Private

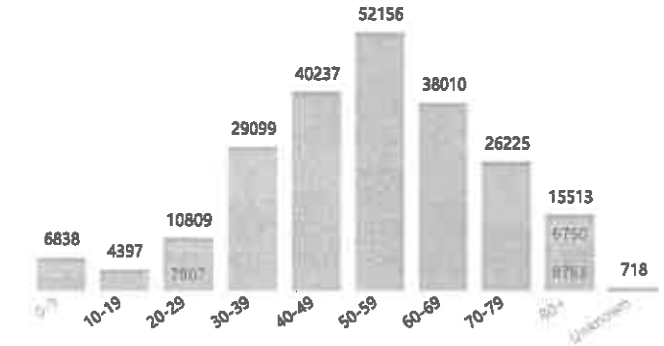
health

The number of reported admissions may change day-to-day as enrolled facilities back-capture historical data.
The data below refer to admitted patients who test positive for SARS-CoV-2 on PCR or antigen tests.

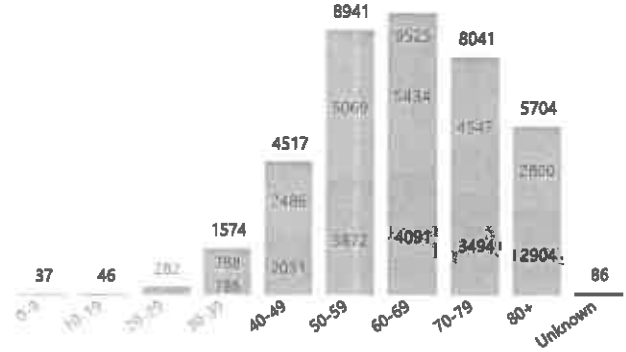
Hospital admissions of COVID-19 cases by epidemiological week

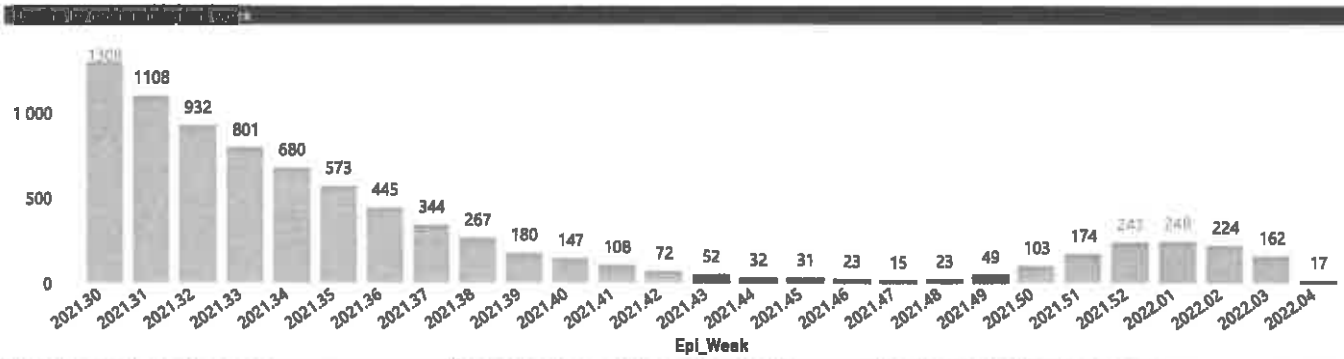


Admissions to date by age group and sex



Deaths to date by age group and sex

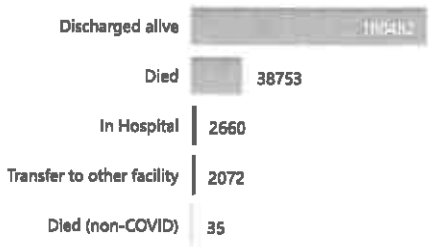




Ward of currently admitted patients

Interventions for currently admitted patients

Admissions to date by discharge type



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24 January 2022	NICD National COVID-19 Hospital Surveillance	Private

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

The number of reported admissions may change day-to-day as enrolled facilities back-capture historical data.
The data below refer to admitted patients who test positive for SARS-CoV-2 on PCR or antigen tests.

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Summary of reported COVID-19 admissions by province

Province	Facilities Reporting	Admissions to Date	Died to Date	Discharged to date	Currently Admitted	Currently in ICU	Currently Ventilated	Currently Oxygenated	Admissions in Previous Day
Eastern Cape	18	14880	3325	11326	159	22	9	3	0
Free State	20	13328	2211	10817	122	13	9	6	0
Gauteng	96	80283	14253	64481	1047	154	54	58	9
KwaZulu-Natal	47	42350	7194	34232	509	96	30	44	5
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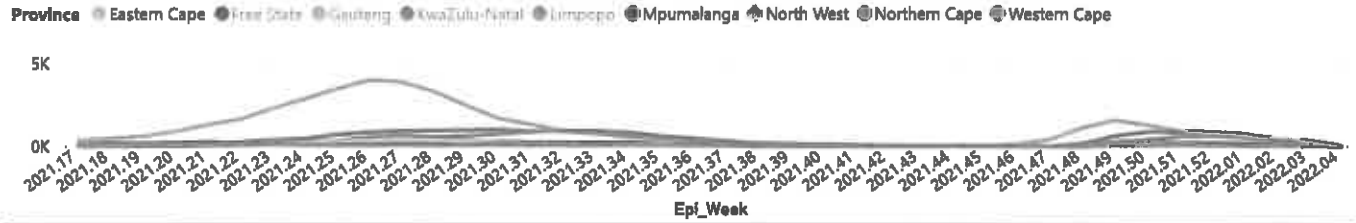
Northern Cape	6	5282	827	4185	27	4	2	1	0
Western Cape	43	36563	5968	30003	462	60	28	23	1
Total	**259**	**224002**	**38753**	**180482**	**2571**	**380**	**150**	**159**	**19**

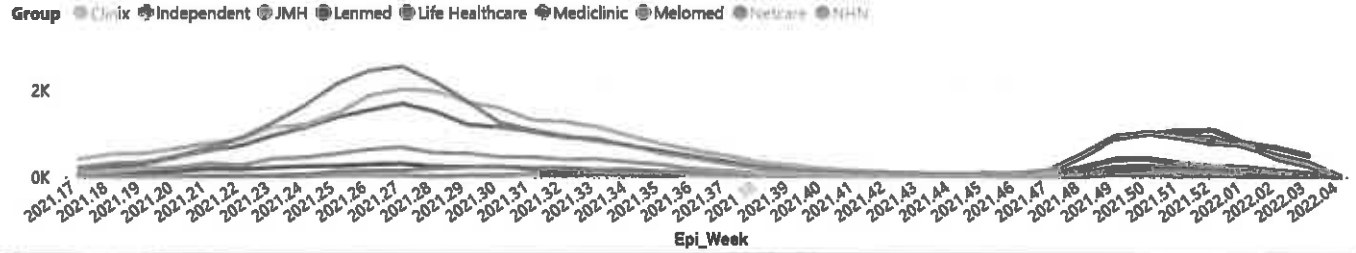
Summary of reported COVID-19 admissions by hospital group

Hospital_Group	Facilities Reporting	Admissions to Date	Died to Date	Discharged to date	Currently Admitted	Currently in ICU	Currently Ventilated	Currently Oxygenated	Admissions in Previous Day
NHN	69	24150	3599	18939	382	33	22	105	4
Netcare	61	62007	12889	48020	818	140	46	1	9
Life Healthcare	51	51599	8462	42767	318	74	14	9	5
Mediclinic	51	62109	10310	51175	492	68	36	11	0
Lenmed	11	11389	1518	9441	78	23	8	5	0
Clinix	6	1966	303	1380	240	19	10	7	0
Melomed	5	7856	1244	6393	195	19	12	13	0
JMH	4	2751	427	2209	44	4	2	8	1
Independent	1	175	1	158	4	0	0	0	0
Total	**259**	**224002**	**38753**	**180482**	**2571**	**380**	**150**	**159**	**19**

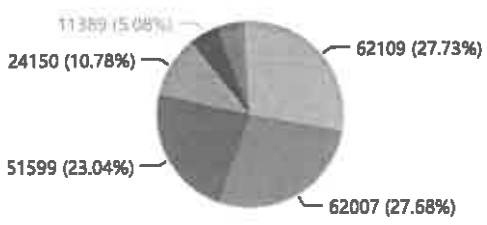
Hospital admissions by province



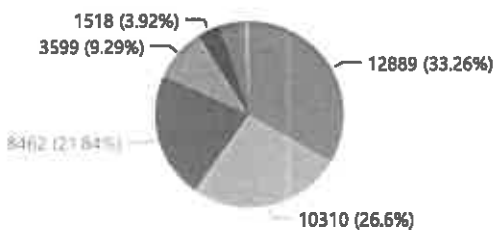
Hospital admissions by hospital group



Admissions by hospital group



Deaths by hospital group



PO

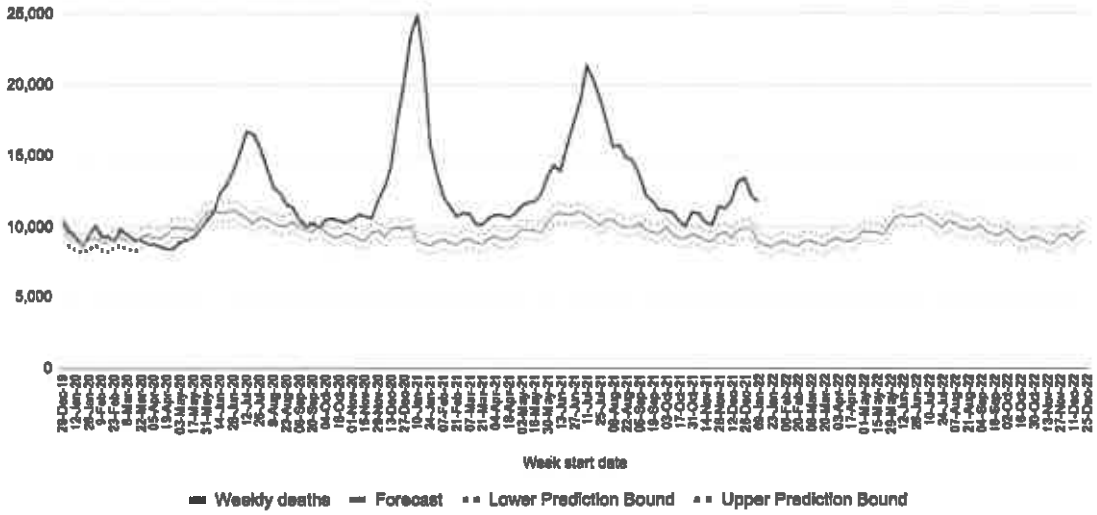
JS10

SAMRC SARS-CoV-2 WASTEWATER SURVEILLANCE DASHBOARD
AN EARLY WARNING SYSTEM FOR COVID-19 INFECTIONS

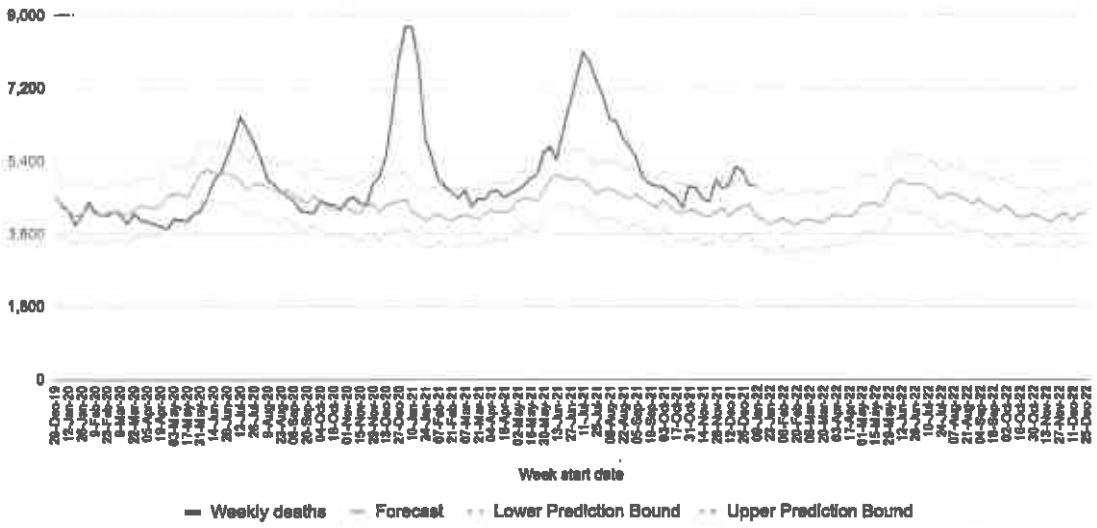
HOME RESEARCH INNOVATION FUNDING RESOURCE CENTRE MEDIA JOBS SERVICES TENDERS/SCM ABOUT US CONTACT US
DASHBOARD RESEARCH PUBLICATIONS RESEARCH REPORTS POLICY BRIEFS

Report on Weekly Deaths in South Africa

South Africa Weekly Deaths from All Causes : 29 Dec 2019 - 15 Jan 2022

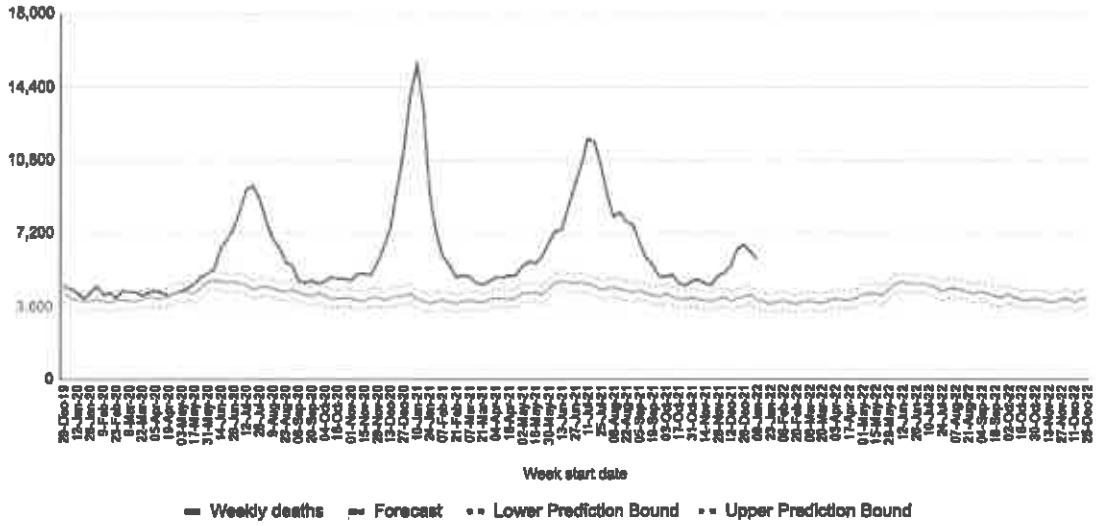


South African Weekly Deaths from Natural Causes <60 years : 29 Dec 2019 - 15 Jan 2022



10

South African Weekly Deaths from Natural Causes 60+ years : 29 Dec 2019 - 15 Jan 2022



In the context of the emerging COVID-19 pandemic, it has become essential to track the weekly number of deaths that occur. Deaths recorded on the National Population Register are provided to the SAMRC on a weekly basis. These have been scaled up to estimate the actual number of deaths by accounting for the people who are not on the population register and the under-registration of deaths. The methodology for the adjustment and predicted values have been changed to enable monitoring in 2021 and the reporting week has been changed to an 'epi-week' that runs from Sunday to Saturday. The estimated numbers are compared with the number that would be expected based on the historical data from 2014-2019 (see Methodological Note for more details). The number of deaths of persons 1-year and older are reported because birth registration was put on hold during lockdown stage 5 affecting the number of infant deaths recorded on this system. The start date of each week is represented on the graph.

View the latest report

- Weekly Report for 9 - 15 January 2022
- Estimated Deaths for South Africa (Excel spreadsheet)
- Correlation of Excess Natural Deaths with other Measures of the COVID-19 Pandemic in South Africa
- Methodological Note

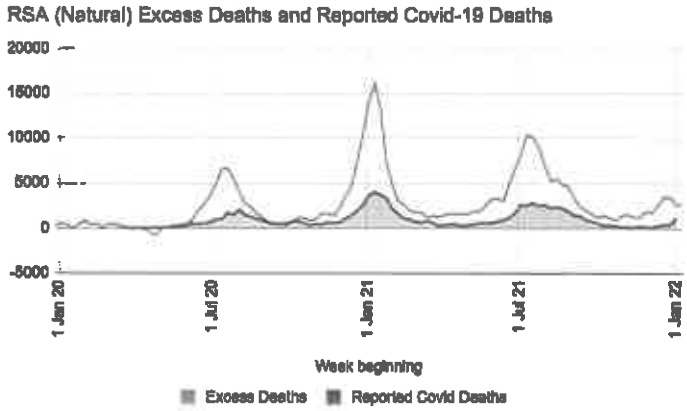
Estimated number of excess natural deaths and death rates by province and metro, South Africa 2020/2021 (all ages)

Cumulative Weekly : Excess deaths

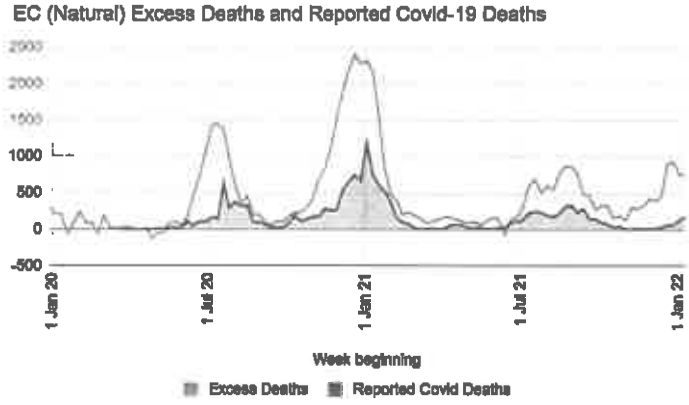
Region	Excess deaths 3 May 2020 - 15 Jan 2022	Excess dea 100,000 pop
South Africa	292,703	492
Province		
Eastern Cape	49,388	750
Free State	16,407	564
Gauteng	58,107	372
KwaZulu-Natal	60,189	526
Limpopo	31,173	528
Mpumalanga	22,550	469
Northern Cape	8,288	708
North West	16,483	409
Western Cape	30,118	427
Metropolitan Municipality		

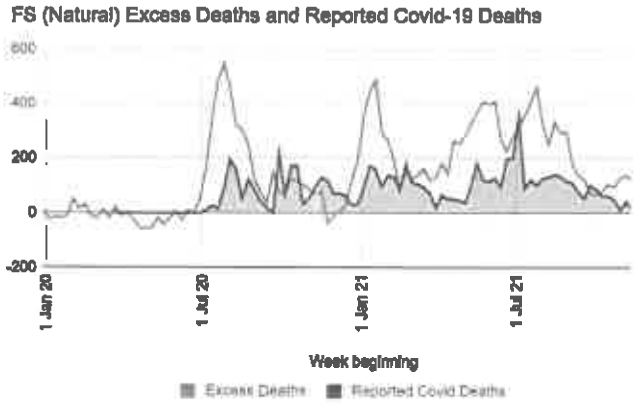
Excess deaths

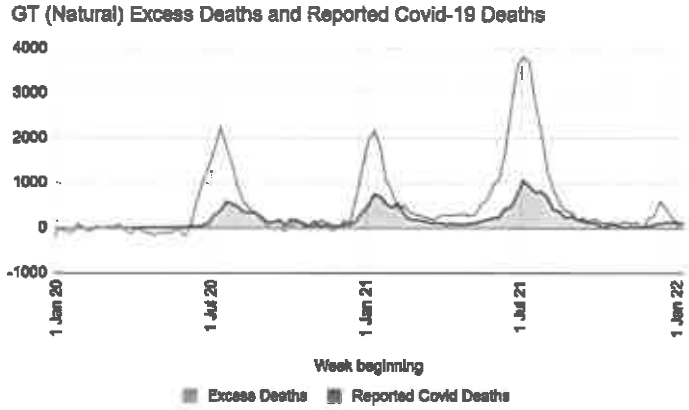
One approach to aid understanding of the emerging COVID-19 mortality is to compare the estimated weekly excess deaths with the number of COVID-19 deaths reported by the Minister of Health as shown in the figure below. This comparison is hampered to some degree by the fact that the excess deaths are classified by week in which the death occurred; the reported COVID-19 deaths are classified by date the numbers are reported to the Department. If all excess natural deaths were due to COVID-19, and all COVID-19 deaths were perfectly identified and reported, the two series would be identical. The number of estimated excess deaths has begun to decrease, consistent with the trend in the number of confirmed COVID-19 deaths. Although more data are needed on the underlying causes of death, this observation is strongly supportive that a significant proportion of the current excess mortality being observed in South Africa is likely to be attributable to COVID-19.

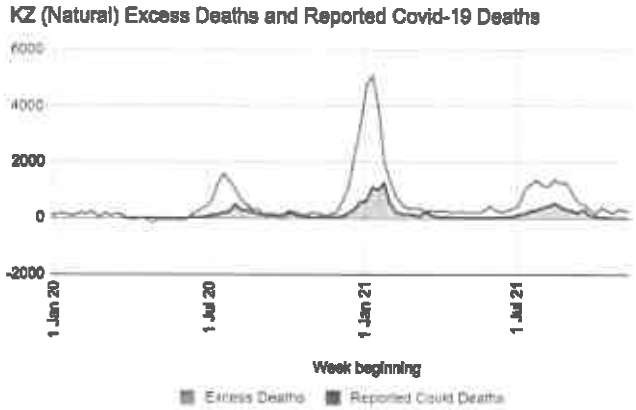


Provinces

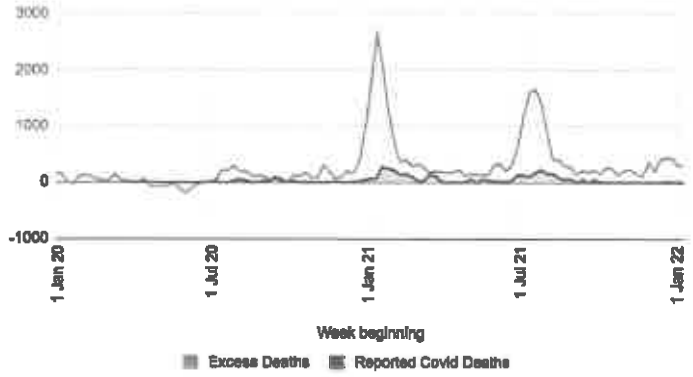




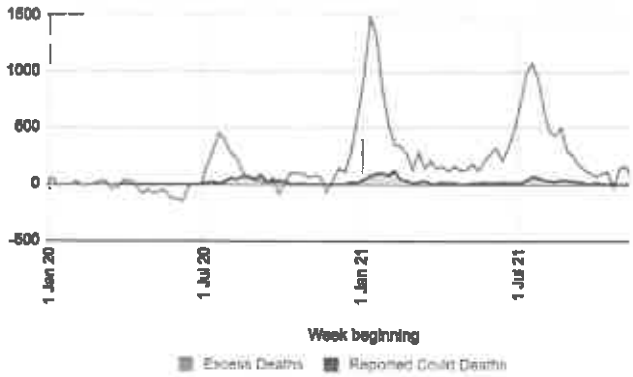




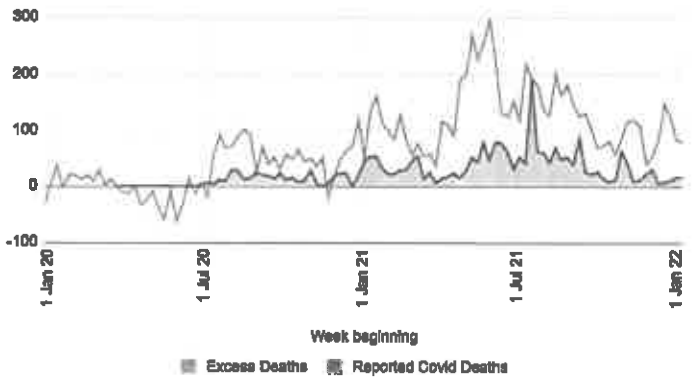
LM (Natural) Excess Deaths and Reported Covid-19 Deaths



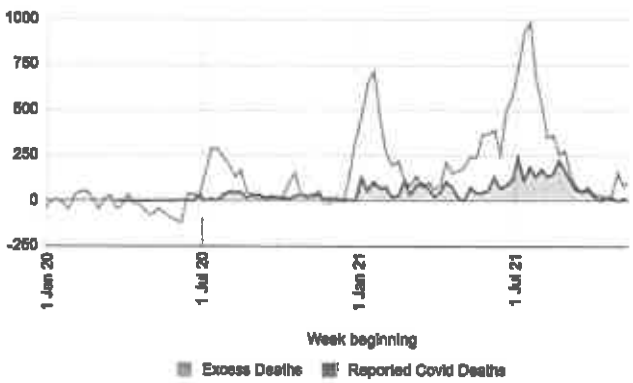
MP (Natural) Excess Deaths and Reported Covid-19 Deaths



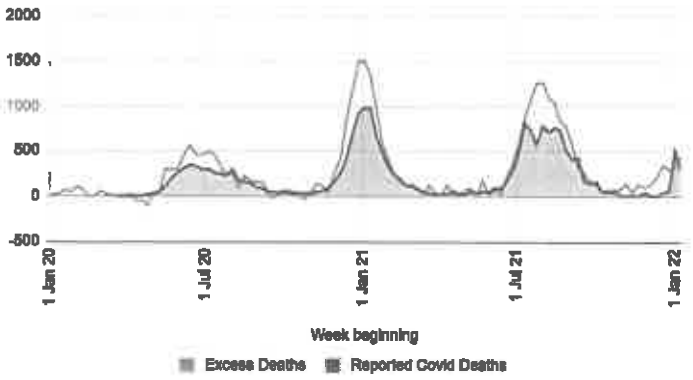
NC (Natural) Excess Deaths and Reported Covid-19 Deaths



NW (Natural) Excess Deaths and Reported Covid-19 Deaths



WC (Natural) Excess Deaths and Reported Covid-19 Deaths

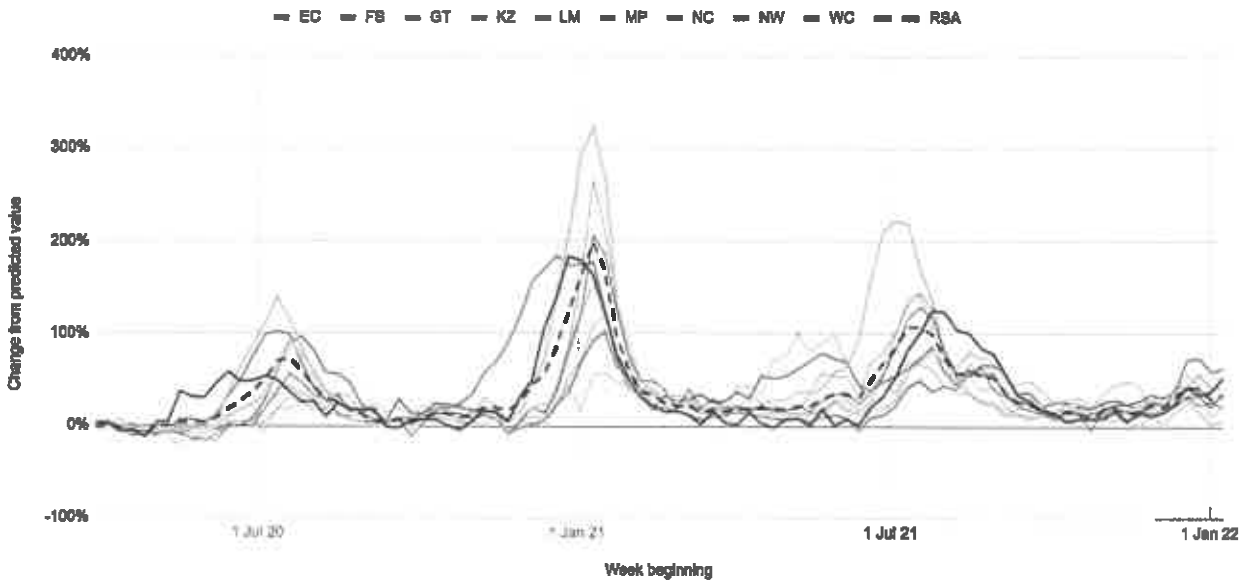


The P-Score is another measure frequently used to describe excess mortality on a weekly basis. It is the percentage change in the number of deaths from the expected number for that week. Negative values below 0% reflect a deficit in deaths while positive values reflect an increase. This graph shows the percentage change between the estimated number of deaths from natural causes and the predicted number based on the historical data.

P6

Provincial change from predicted weekly deaths (p-scores), 29 March 2020 - 15 January 2022

Estimates based on weekly numbers of deaths from natural causes of persons 1+ years registered on the National Population Register vs 2014-2019 data



Archives - previous reports

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