Epidemiologists and the new TINA

Juliette Rouchier
Simulation Festival 2023
March 15th
Bruce organizes a « provocative session »

• Really wonder why he asked me

• The way it can be provocative is not clear – maybe because it goes “against a public narrative” that has still not been completely re-discussed scientifically

• However, we are in a time of change about the Covid crisis management (2023):
  • *Excuses* from many politicians and doctors (Germany in particular) about their non-opposition to the too arbitrary and undemocratic policy making
  • *Revelations / accusations*: the US show the highest level of transparency at the moment + trials are starting (controversy of the “origin”)
  • Books are *synthesizing* the past years and making critical summaries for a larger audience

• Method:
  • two and a half year of participant observation in a world of *scientific justification of policies*
  • realization of models for analysing diverse network impacts
Ferguson et al. « report 9 » March 2020

• Announces deaths as high as 500 000 in France « if we do nothing »
  • > the reaction is the same in all Western Europe countries but one (Sweden, for constitutional reasons, in particular) (? – to discuss)

• « do something » is separate people - cut the links, reduce interactions, and for this the lockdown coming from China looks like the best solution
  • France: reject all cures and asks doctors not to treat people
  • Not possible to be at the funeral or see dead people before they are in the coffin (?!)
  • Can take different shapes in different country – from extremely strict (no children outside; self-signed authorization to get out in France)

• Anyone who said « we did not know » is kidding – all people around me who knew how to read and find medicine papers knew it was not reasonable
Ferguson et al. « report 9 » March 2020

• Not peer-reviewed
• Ferguson was already very controversial as he had announced many catastrophes that never happened (not even near from happening)
  • Has a tendency to overdo all risks
  • Did not answer to several colleagues who were contesting their analysis of the Chinese data (at least two declaration)
  • Very central in policy design: already influenced policy a lot – death of many animals for nothing
  • The report was already circulating – among UK politicians but apparently also in Europe – while not even published
  • Was caught going to his lover’s house during the lockdown – which made a mini-scandal but mainly shows that he doesn’t believe his own recommandation

• Led to intense discussion among professionnals of simulation in particular on the simsoc list
Reactions from modellers in France

• A network arises very quickly to produce models – Covprehension (ROFASSS) : Interesting device that did not survive
  • the end of 1st lockdown (reduction of regular participation)
  • beginning of « scientific tensions » (autumn 2020)

• Few critical voices in France : Gianluca Manzo (a sociologist) about the network issue (paper in JASSS) > If we consider a « real network » (on which he had data – and which show the high heterogeneity of

• JR about [network, scale, uniformity hypotheses, children can catch and transmit (which wasn’t true before beta variant), the process of decision]
  • Solving of wicked problems in politics : confront the visions!
  • The objectives for justifying the lockdown started to change from the start (« sliding argumentation ») which made the models « always true »

• Remember that the Main tool « NPI » had NEVER been tested but the sellers of the model said that they knew how to represent its consequences (% of links homogenously broken).
Of 194 model parameters, 192 were estimated from the literature \((n = 170)\) or by assumption \((n = 22)\), and 2 parameters, contamination risk \((\text{per min per m}^2 \text{ of contact})\) and proportion of undiagnosed cases, could not be estimated and were therefore calibrated. (…)

The stochastic ABM was run for 360 d on 500,000 individuals. The results were based on an average of 200 simulations. Analyses were performed on 17 May using data for model parameters until 15 April. Results were extrapolated to the French population of 67 million people. We provided uncertainty measures by using 200 bootstrap samples based on the random variation of all non-calibrated parameters simultaneously, either within a 95\% confidence interval for parameters estimated from the literature or within a ±20\% interval if the parameter was assumed.

Lockdown = 70\% of links are suppressed
« Rebound » hypothesis
>> Revealed itself wrong as it was new epidemics and not rebound (length of each epidemics 6-8 week)

NO explanation on the cycle of epidemics to date (not found)
Main modelling from the period

**Predict** number of agents: in hospital / In ICU / dead – with n days

Found **contrefactual** for proving the positive effect of NPI

**Agent-Based Modelling** (Ferguson, 2020) (Hoertel, 2020)
Diffusion model – each agent has a state (SIR)

**Compartment** (Mivegec, Montpellier)
Probability by group – number of people in a state (SIR) – probability to jump from one other – R0

**Functional models** (Inserm, inrae, institut Pasteur)
Continuous functions that extrapolate with fitted parameters on the past and then projection – choice of the parameters are central – no theory behind !!

Process / Theory + fit

« Phenomenologic » = extrapolations
Normal science spaces

MODCOV19: Modélisation et Covid-19
Ex post (+ / -)

- Fact checking= 9 out of 10 expressed predictions were false (M. Langevin)
- Reduction of the epidemics by the lockdown?
  - Never could be proven properly apart from the « self contained argument of modellers »
    - I predict a very catastrophic death rate (with a never validated model containing many methodolgical flaws)
    - The death rate is not there
    - I conclude on the success of the lockdown
- International comparison of different areas in different times with different NPI > impossible to detect a positive effect of lockdown
- The proof is difficult per se because of perpetual change in
  - Politics
  - Measures – number of death (with changes in definition), number of people touched (with differences in identification), ICU use (with change in the definition of ICU in France (!)
- « Explanation » : the places of infection are not totally arbitrary – Hospital (up to 40%) – in house (no estimates but a rationale) ... **Need to know networks AND practices**
Ex post (+ / - )

• Massive increase of poverty and misery
  • Food distribution X 2 in France (starting high already)
  • In particular for students! But many precarious population still suffer

• Mental health of children and young adults has decreased
  • Suicides with recidive at hospital (ex of a child of 8 – never ever seen by doctors before)
  • Declarative inquiries go from 9% to 19% in three years for depression in less than 18

• Inequality increased
  • High dependency of the feeling about the period on the conditions of living
  • Economies don’t start again (« easy to stop but we don’t know how to start again »)
  • Children of difficult environment have lost desire / interest in school more surely

• Democratic drama
  • Governance by acceptability organized by private council companies (often dishonest in the past and basing their knowledge on the sciences of manipulation)
  • Habit of exclusion for « good reasons » of a part of the population – loss of jobs
  • Instrumentalization of science that is unimaginable unless we read in the past complains of academics (« Nuremberg for the Vietnam » by Russell)
A clear critic of processes from a non-academic

• Description of an attempt to communicate by a google researcher

• Modcov19 - GT12 (15/12/2020) : organisational decision aiding –

• Emergency doctor-managed bed management for ICUs: ICUBAM, Gabriel Dulac-Arnold (Google Research, Paris))
  • Nobody knows them - I have a great network among mathematicians and computer scientists (Mine, X, INRIA) : who are they?
  • (They never answered to attempts of communication about their data, from him and his colleagues)
  • « Apparently they are hurrying for publishing papers, while we are solving current problems: anyone can choose their priority but it is a bit strange.
Imperialism from « Imperial college »?

Membres

Simon Cauchermaz
RESPONSABLE DE STRUCTURE

Juliette Paireau
INGÉNIEURE(E) DE RECHERCHE

Nathanaël Hozé
POST-DocTOURAN(T)E

Cécile Limouzin
PERSONNEL ADMINISTRATIF

Paolo Bosetti
POST-DocTOURAN(T)E

Maylis LAYAN
ETUDIANT(E) EN THÈSE

Cécile TRAN
Kiem
ETUDIANT(E) EN THÈSE

Thomas Cortier
ETUDIANT(E) EN THÈSE

Antoine Brault
POST-DocTOURAN(T)E

Lina Cristancho Fajardo
POST-DocTOURAN(T)E

Leela Thamaraikkannan
ETUDIANT(E)

Charlotte Perlant
ETUDIANT(E) EN THÈSE

Matthew SHIN
ETUDIANT(E) M2
Difficulty of criticizing in real time

• Feeling extremely « woman » - not heard, not seen, even by women in this mathematical + physical world

• The **authorities** were set from where ??? : any analysis coming from the Institut Pasteur was right:
  - R0
  - Models of prediction that ended up being only projections for the next 15 days
  - Suppression of videos where there were clear mistakes in the data !!!

• Confronted to another team – Samuel Alizon from Montpellier who also « predicts » two weeks in advance
  - Why not use **data** instead of model **extrapolation** based on extremely partial data (self-decision for pcr testing) (Academy of medecine, july 2020 – the analysis of waste water) – no answer > because of the rain (!)
  - The need to be visible (Brut = internet TV) to get more legitimacy > get money from the next call for projects
• Position of these modellers
  • Non communication (France + England reported experience) with colleagues about their assumptions and methods although they are clearly « not good for identifying limits of their method »
  • *Remember TINA (There Is No Alternative: the neo-liberal anthem)* as *authoritative non disputable attitude from economists*

• Intense propaganda work, which we have to acknowledge if we are to be less passive next time
  • « Next time » has chances to occur as it was a similar discourse for H1N1 flu with more resistance from the family doctors (and no lockdown)
  • [https://www.senat.fr/rap/r09-685-1/r09-685-11.pdf](https://www.senat.fr/rap/r09-685-1/r09-685-11.pdf) : denounces a FRAUD at that time + recommandation not to take the same scientists in the scientific council !!!!!

• Attack against anyone who opposes the official discourse
  • Forfeiture of great scientists (the list is long)
  • Scientific « consensus » that are displayed by non-specialists as official truth
  • Fact checkers as new « doubt mongers »
Solutions?

• More solidarity, respect and ability to listen to complex argument within academic world
  • Which goes against incitations for our production of papers
  • Remember « slow science » !!!

• Stop believing in progress as a driving force
  • For politics
  • For science and its application – go back to Foucault ? –

• New trend in « ethics of science »: to wonder about the real cost of research and real benefits

• KEEP WORKING ON MODELS !!! Understanding dynamical structures better is our hope !