



COFES **W E B I N A R** **aysa**

DETECCIÓN DEL SARS-COV-2 EN LÍQUIDO CLOACAL, COMO MÉTODO DE VIGILANCIA EPIDEMIOLÓGICA

EXPOSITORES

- Alejandro Barrio (Director DTyDT, AySA – Presidente del COFES)
- Juan Carlos Vuolo (Laboratorio Central, DTyDT, AySA)
- Verónica Borro (Gerente de Calidad, DTyDT, AySA)
- Morón, Adriana (Investigación y Desarrollo, DTyDT, AySA)

Viernes 26 de Junio
11 :00 Hs - Argentina
(UTC/GTM - 3 HS)



Pedro Simón Andreu

Director Técnico ESAMUR



Murcia : 1,5 mill habitantes

6 EDAR que controlan 750.000 habitantes

Primeras muestras : 12 Marzo

2 muestras/semana



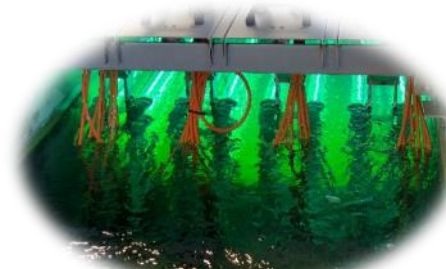
Colaboración con CEBAS-IATA-CSIC



Influente



Secundario

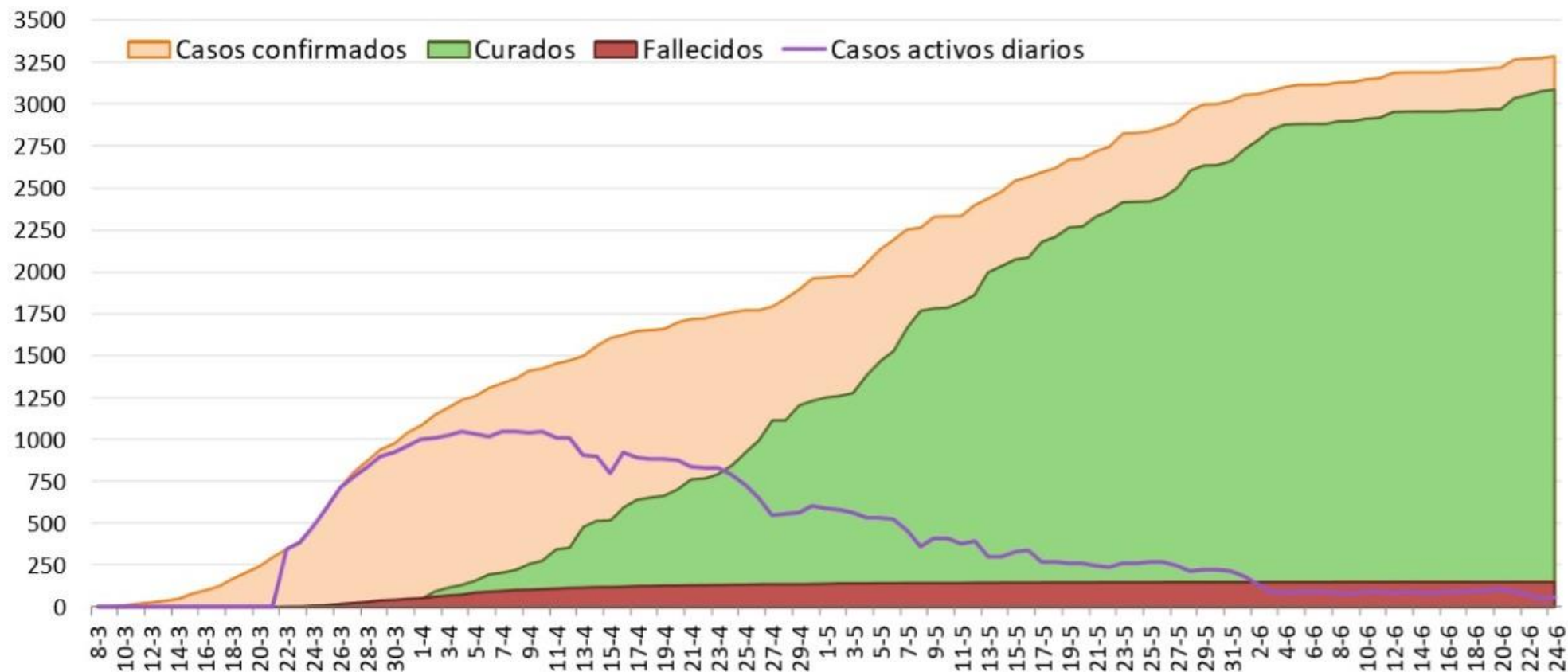


Terciario



Lodos

Figura 2. Número de casos confirmados, alta epidemiológica (curados) y fallecidos acumulados COVID19. Región de Murcia.



Fuente: Servicio de Epidemiología. D.G. Salud Pública y Adicciones.

R
C
G
E
D

Lorca			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			35,13
12/03/2020		35,83	35,26
16/03/2020			
16/03/2020			
18/03/2020	35,87		36,72
18/03/2020	36,37		36,31
26/03/2020			
26/03/2020			
26/03/2020		35,30	
26/03/2020			
02/04/2020	37,18	36,91	35,70
02/04/2020	37,38		37,19
07/04/2020			35,71
07/04/2020	35,80		
14/04/2020	37,01	37,00	37,13
14/04/2020	36,69	38,00	
21/04/2020	37,62	38,06	36,76
21/04/2020			
28/04/2020			
28/04/2020			
05/05/2020			
05/05/2020			
06/05/2020	35,07	36,68	
06/05/2020	37,15	36,25	
12/05/2020			
12/05/2020			
19/05/2020			
19/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020	35,99		
28/05/2020			
28/05/2020			
28/05/2020			
28/05/2020			
01/06/2020	37,60		
01/06/2020			
04/06/2020			
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020			
15/06/2020			
15/06/2020			

Cieza			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			
12/03/2020			
16/03/2020	34,52	36,08	35,22
16/03/2020	34,83	36,97	36,44
18/03/2020			
18/03/2020		38,40	
18/03/2020	36,01	36,77	38,14
18/03/2020	36,00	37,76	
26/03/2020			
26/03/2020			
26/03/2020			36,54
26/03/2020		37,16	
02/04/2020			
02/04/2020		37,25	
07/04/2020			36,45
07/04/2020		35,10	
14/04/2020		36,79	
14/04/2020		36,70	
20/04/2020			
20/04/2020	37,79		
27/04/2020	36,99		
27/04/2020			
04/05/2020			
04/05/2020			
07/05/2020			
07/05/2020			
11/05/2020			
11/05/2020			
18/05/2020			
18/05/2020			
21/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020			
28/05/2020	36,14		
28/05/2020			
28/05/2020	37,82		
28/05/2020			
01/06/2020			
01/06/2020			
04/06/2020			
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020			
15/06/2020			
15/06/2020			

Molina del Segura			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			36,45
12/03/2020		37,17	
16/03/2020		38,31	
16/03/2020			
18/03/2020			36,09
18/03/2020			
26/03/2020			36,29
26/03/2020			
26/03/2020			
02/04/2020	37,31	38,76	36,78
02/04/2020	36,78	38,01	38,94
07/04/2020	34,65		35,58
07/04/2020	35,53	35,78	36,16
14/04/2020	37,24	36,67	36,64
14/04/2020	36,55	36,93	37,23
20/04/2020			
20/04/2020			
27/04/2020			
27/04/2020			
04/05/2020			
04/05/2020			
07/05/2020			
07/05/2020			
11/05/2020			
11/05/2020			
18/05/2020			
18/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020			
28/05/2020			
28/05/2020	35,93		
28/05/2020			
28/05/2020			
01/06/2020			
01/06/2020			
04/06/2020			
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020			
15/06/2020			
15/06/2020			

esamur



Murcia			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			
12/03/2020			
16/03/2020		37,82	
16/03/2020	34,77		
18/03/2020			37,58
18/03/2020			
26/03/2020			
26/03/2020			
26/03/2020	35,84	36,59	
26/03/2020	35,85	36,53	35,37
02/04/2020			
02/04/2020	37,16		
07/04/2020		35,93	36,33
07/04/2020	36,97		35,60
14/04/2020	35,71		36,87
14/04/2020	36,73		
20/04/2020			
20/04/2020			
27/04/2020	36,73		
27/04/2020			
04/05/2020			
04/05/2020			
07/05/2020			
07/05/2020			
11/05/2020			
11/05/2020			
18/05/2020			
18/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020			
28/05/2020	35,95		
28/05/2020			
28/05/2020			
28/05/2020			
01/06/2020			
01/06/2020			
04/06/2020	33,70		
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020	35,29		
15/06/2020	34,78		
15/06/2020	34,27		

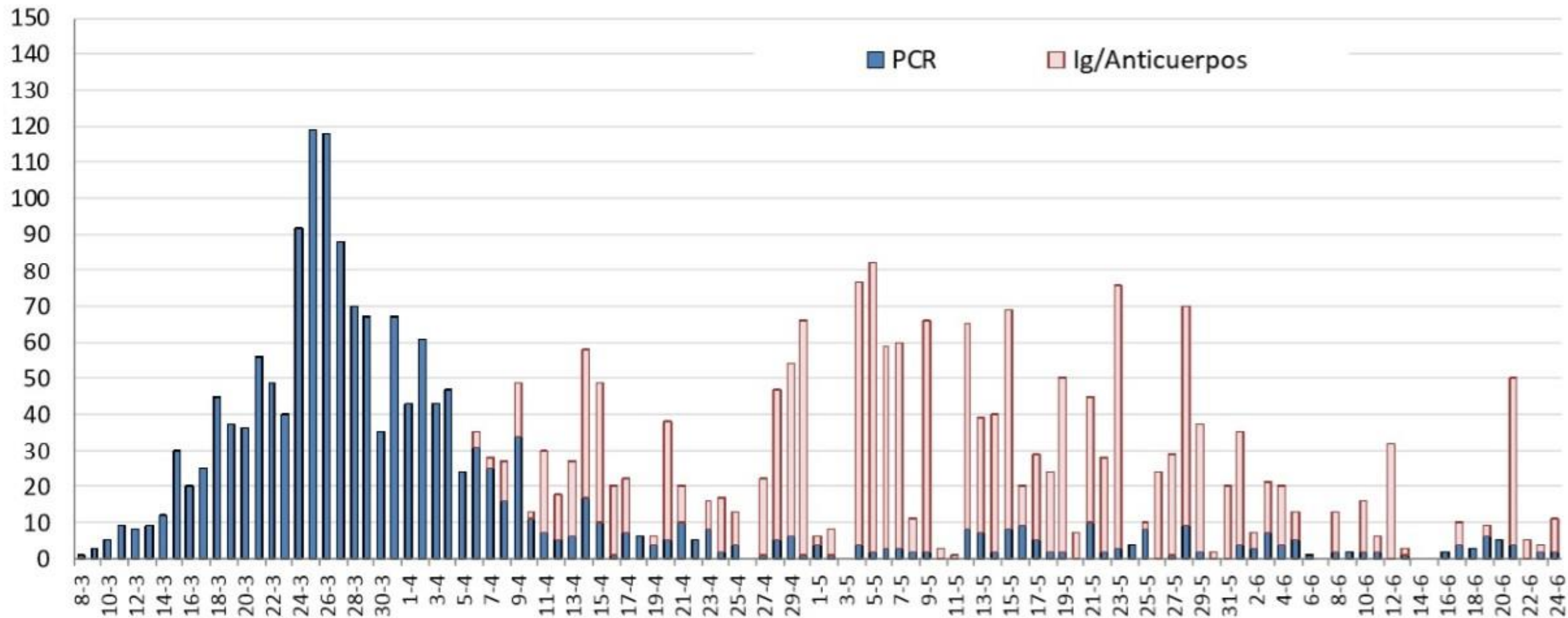
urcia

Cartagena			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			
12/03/2020			
16/03/2020			37,76
16/03/2020			
18/03/2020			
18/03/2020			36,61
26/03/2020			
26/03/2020			
26/03/2020	37,02		
26/03/2020		37,21	
02/04/2020	36,01		36,50
02/04/2020	37,27	37,87	36,78
07/04/2020			37,65
07/04/2020			
14/04/2020	36,99	36,60	36,65
14/04/2020	36,99	37,18	
21/04/2020			
21/04/2020			
28/04/2020	37,33		
28/04/2020			
05/05/2020	36,87		
05/05/2020			
06/05/2020			
06/05/2020			
12/05/2020			
12/05/2020			
19/05/2020	36,63		
19/05/2020			
21/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020			
25/05/2020			
28/05/2020			
28/05/2020			
28/05/2020			
28/05/2020			
01/06/2020			
01/06/2020			
04/06/2020			
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020			
15/06/2020			
15/06/2020			

Totana			
Fecha	N1 [Ct]	N2 [Ct]	N3 [Ct]
12/03/2020			
12/03/2020			
16/03/2020		38,00	
16/03/2020	36,61		35,68
18/03/2020			
18/03/2020			
26/03/2020			
26/03/2020			
26/03/2020			
26/03/2020	35,92		36,85
02/04/2020		36,48	
02/04/2020	37,25		36,29
08/04/2020	37,04		
08/04/2020			
14/04/2020			
14/04/2020			
21/04/2020	37,01		34,97
21/04/2020	37,26	37,67	
28/04/2020	35,96		
28/04/2020			
05/05/2020			
05/05/2020			
06/05/2020	36,32	36,98	
06/05/2020		37,13	
12/05/2020			
12/05/2020			
19/05/2020			
19/05/2020			
21/05/2020			
21/05/2020			
25/05/2020			
25/05/2020			
25/05/2020			
28/05/2020			
28/05/2020			
28/05/2020			
28/05/2020			
01/06/2020			
01/06/2020			
04/06/2020			
04/06/2020			
11/06/2020			
11/06/2020			
11/06/2020			
15/06/2020			
15/06/2020			
15/06/2020			



Figura 1. Número de casos confirmados COVID-19 por fecha de notificación y tipo de prueba diagnóstica. Región de Murcia.



Fuente: Servicio de Epidemiología. D.G. Salud Pública y Adicciones.



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SARS-CoV-2 RNA in wastewater anticipated COVID-19 occurrence in a low prevalence area

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ABSTRACT

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused more than 200,000 reported COVID-19 cases in Spain resulting in more than 20,800 deaths as of April 21, 2020. Faecal shedding of SARS-CoV-2 RNA from COVID-19 patients has extensively been reported. Therefore, we investigated the occurrence of SARS-CoV-2 RNA in six wastewater treatment plants (WWTPs) serving the major municipalities within the Region of Murcia (Spain), the area with the lowest COVID-19 prevalence within Iberian Peninsula. Firstly, an aluminum hydroxide adsorption-precipitation concentration method was validated using a porcine coronavirus (Porcine Epidemic Diarrhea Virus, PEDV) and mengovirus (MgV). The procedure resulted in average recoveries of $10 \pm 3.5\%$ and $10 \pm 2.1\%$ in influent water ($n = 2$) and $3.3 \pm 1.6\%$ and $6.2 \pm 1.0\%$ in effluent water ($n = 2$) samples for PEDV and MgV, respectively. Then, the method was used to monitor the occurrence of SARS-CoV-2 from March 12 to April 14, 2020 in influent, secondary and tertiary effluent water samples. By using the real-time RT-PCR (RT-qPCR) Diagnostic Panel validated by US CDC that targets three regions of the virus nucleocapsid (N) gene, we estimated quantification of SARS-CoV-2 RNA titers in untreated wastewater samples of $5.4 \pm 0.2 \log_{10}$ genomic copies/L on average. Two secondary water samples resulted positive (2 out of 18) and all tertiary water samples tested as negative (0 out of 12). This environmental surveillance data were compared to declared COVID-19 cases at municipality level, revealing that members of the community were shedding SARS-CoV-2 RNA in their stool even before the first cases were reported by local or national authorities in many of the cities where wastewaters have been sampled. The detection of SARS-CoV-2 in wastewater in early stages of the spread of COVID-19 highlights the relevance of this strategy as an early indicator of the infection within a specific population. At this point, this environmental surveillance could be implemented by municipalities right away as a tool, designed to help authorities to coordinate the exit strategy to gradually lift its coronavirus lockdown.

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17 DE JUNIO DE 2020

PROYECTO VATAR – COVID-19 SELECCIÓN DE PUNTOS DE MUESTREO

España : Ministerios de Medio
Ambiente y Sanidad

HERRAMIENTA EPIDEMIOLÓGICA BASADA EN EL CONTROL DE LAS AGUAS RESIDUALES (HERAR) COMO INDICADOR DE ALERTA TEMPRANA DEL SARS-COV2



Virtual Town Hall

SARS-CoV-2 monitoring employing Sewers -

A first gathering to share knowledge and practices

En España la mayoría de Comunidades Autónomas y ciudades están implantándolo



CONCLUSIONES

- La herramienta de detección parece que es muy útil como alerta temprana y para ver tendencias
 - Correlacionar los resultados con precisión con el número de contagiados es muy difícil debido a las variaciones que produce la red de saneamiento
 - La sectorización es importante para acotar los problemas
 - Es importante trabajar conjuntamente con los servicios sanitarios, para ir mejorando la herramienta
 - Se sigue trabajando para hacer la herramienta más sensible y precisa (toma de muestras, extracción, concentración, primers más adecuados, ...)
 - Es muy importante compartir la información : O salimos todos o no sale nadie
-